John Crawford,
M. D.

MEDICAL FACTS

AND

OBSERVATIONS.

VOL. V.

MEDICAL FACTS

AND

OBSERVATIONS.

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ERRATUM.

In Vol. IV. page 122, line 1, *for* but the uterus, *read* but the diſcharge from the uterus.

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MEDICAL FACTS

AND

OBSERVATIONS.

I. *An Account of two Cases of Popliteal Aneurism; communicated in a Letter to* Samuel Foart Simmons, *M. D. F. R. S. by Mr.* Thompson Forster, *Surgeon on the Staff of the Army, and Surgeon to Guy's Hospital.*

To Dr. Simmons.

Dear Sir,

THE mode of operation for the popliteal aneurism, adopted by that truly-ingenious physiologist, the late Mr. John Hunter, may perhaps be considered as one of the most valuable improvements of modern surgery. It ap-

pears evidently to have been the reſult of a judicious chain of reaſoning, founded on a thorough knowledge of the vaſcular ſyſtem, and of the powers reſiding in the abſorbents; but the full extent of its merits or defects, and conſequently the grounds on which it may be ſuſceptible of farther improvement, can be aſcertained only by the accumulated obſervations of different practitioners, accurately and candidly related. Hence it is that having lately had two caſes under my care, in which I have performed the operation in queſtion, I conſider it as a ſort of duty to communicate them to the Public: I therefore take the liberty of tranſmitting to you the following account of them, to be inſerted, if you deem it ſufficiently intereſting, in your valuable collection of Medical Facts and Obſervations.

Believe me, Dear Sir,

Yours, &c.

October 22, 1793.

THOMPSON FORSTER.

CASE

CASE I.

Joſeph Keeping, aged thirty-five years, a ſtrong, healthy, hard-working man, by trade a carpenter, was admitted as my patient into Guy's Hoſpital, on the 17th of Auguſt, 1791, for the cure of an aneuriſm of the popliteal artery.

This complaint had begun about a year before, with a ſudden pain in the calf of his leg, followed by a ſlight univerſal ſwelling of the whole limb, but not attended with ſufficient inconvenience to hinder him from working daily at his buſineſs.

At the end of a fortnight he perceived a ſmall tumour more immediately in the ham; and in the courſe of about ſix weeks from its firſt appearance, it increaſed to the ſize of half a golden pippin, forming a protruſion which appeared, in ſome meaſure, diſtinct from the general œdematous enlargement of the limb.

To this tumour he applied embrocations and oils recommended by different perſons of his acquaintance, for two months more, at the ex-

piration of which time, he was ſo far from being better, that it was not without great pain he could attend his buſineſs, the limb being more univerſally enlarged, and the difficulty of moving it ſo much increaſed, that he now found himſelf obliged to deſiſt intirely from all manner of work. In this ſtate he remained ſome time longer, with the hope that reſt, which gave him eaſe, would in time cure his complaint. He ſtill continued, however, to rub the limb with oils of ſome kind or other, till at length his hand, by frequently going over the ſmall tumour in the ham, became ſenſible of a pretty ſtrong pulſation in it. Being much alarmed at this, he came into Guy's Hoſpital in December, 1790, where reſt, an horizontal poſition, and the continued uſe of a bandage from the foot to the middle of the thigh, conſiderably diminiſhed the general enlargement of the limb, but the protruding pulſating tumour remained in the ſame ſtate as before.

As he was very deſirous of returning to his buſineſs, and no immediate danger of his life was then apprehended, he was permitted, towards the end of January, 1791, to go out of the hoſpital, as he worked near it, but was deſired to come again whenever the complaint ſhould

ſhould give him any inconvenience, and was directed to favor the limb as much as he could, and to keep it conſtantly rolled from the foot upwards. We heard nothing of him till Auguſt 17, 1791, when he appeared to be in a very alarming ſtate. His foot, leg, and ham, were now very much enlarged, and the tumour, before mentioned, was increaſed and tenſe; the ſkin was very thin, exhibiting that appearance which an abſceſs acquires when in a ſtate of perfect ſuppuration; and the pulſation of the tumour was viſible, even at ſome diſtance from him; his pulſe was very quick and full; he was extremely irritable and weak; he had a dry ſkin, with conſiderable thirſt; and anxiety was ſtrongly marked in his countenance.

I immediately ordered ten ounces of blood to be taken from his arm, and a purgative medicine to be given in the morning, as he had not had any evacuation for four days.

On the morning of the 22d, in conſultation with my colleagues, Meſſrs. Lucas and Cooper, it was judged adviſable, in order to preſerve his life, that the femoral artery ſhould be ſecured, and to truſt to the abſorbing powers to leſſen the tumour and the enlarged limb.

I placed a tourniquet on the limb as high as poſſible, in order to have room enough; but the tourniquet was intirely looſe, and of courſe made no preſſure on the artery. It was ſo placed, however, as to be capable of inſtantly ſtopping the circulation if required. I then made an inciſion in the courſe of the under edge of the ſartorius muſcle, about three inches in length, and, by raiſing up the lower edge of that muſcle, I came at the artery, about two inches before it perforates the triceps femoris; after carefully ſeparating it from the vein and nerve, I paſſed a broad ligature by means of a common eyed-probe under it, placing a doſſil of lint on the artery immediately over the ligature, upon which lint I laid a cylindrical piece of wood, about a third of an inch in diameter, and three quarters of an inch long, ſo that on tying the ligature, the artery, lint, and ſtick became included in ſuch a manner as to make the artery ſpread itſelf more than half round the ſtick thus cuſhioned with the doſſil of lint.

I conceive all this precaution to be abſolutely neceſſary to guard againſt the circumſtance of the coats of the artery being cut through by the ligature in the firſt inſtance; and, in the ſecond, to prevent the impetus of the blood from throwing

throwing off the ligature at the end of ſome days, when the ulcerative proceſs may have weakened the coats of the artery at the compreſſed part: and if we allow a poſſibility of this happening before the depoſit of coagulable lymph ſhall have become ſufficiently vaſcular to render it capable of reſiſting the force of the column of blood oppoſed to it, every precaution ſhould be taken to prevent an hæmorrhage from ſo large a veſſel, which moſt likely would prove fatal before aſſiſtance could be procured; theſe were my reaſons for interpoſing the lint and ſtick between the ligature and the artery. I then drew the ligature tight enough to ſtop all pulſation in the tumour below; I left the ends of the ligature out of the wound, which I partially cloſed; the dreſſings were ſuperficial, and I applied an eaſy bandage.

The firſt conſequence reſulting from this ligature, was an immediate ſtop to the pulſation in the tumour, and an evidently-increaſed fulneſs in the pulſe at the wriſt. The patient was kept perfectly quiet, and allowed only diluting drinks; at eight in the evening, (about ſeven hours after the operation) his pulſe being quick and full, ſix ounces of blood were taken from his arm, and he took a grain of opium.

Aug. 23d. He had paſſed a reſtleſs night, with thirſt, and pain in his thigh. The temperature of the limb was this day ſeveral degrees lower than that of the other limb; but as I ſubjoin a table of temperature, I ſhall omit it in the narrative; his pulſe, however, was more moderate; he had ſome good ſleep during the day, and his pain became leſs, but his pulſe was quicker towards the evening; the opiate was repeated.

24th. This morning he ſcarcely complained of any pain in the limb. As he was coſtive, I ordered him ſome caſtor oil, by means of which ſtools were procured.

The next day, (the 25th) he was very calm, and without any pain in the limb, having ſlept well the preceding night; ſtill, however, his pulſe kept at from 102 to 110. I gave him a ſaline julep and the opiate as before.

Except a quickneſs of his pulſe, which came on every evening, coſtiveneſs, which was occaſionally relieved, and a certain irritability about him, nothing occurred till the 27th, when an uneaſineſs and fætor in the limb obliged me to dreſs the wound. There was then a very great diſcharge of good matter; I ordered him the bark, and a more nouriſhing diet. From this

this time he loſt that quickneſs of his pulſe, and that irritability before mentioned; his limb, below the ligature, about this time became relaxed, particularly the tumour in the ham; the ſize of the whole limb was perceptibly leſs, and his appetite returned; but the diſcharge remaining very conſiderable, he continued to take the bark and opium, and care was taken to obviate coſtiveneſs.

On the eighth of September, that is, on the ſeventeenth day from the operation, the ligature, ſtick, and lint came all away together, without the leaſt pain or force; ſo that a total ſolution of the continuity of the artery muſt have taken place. The limb, at this time, meaſured two inches leſs in circumference than it did before the operation. Embrocations and a moderately-tight bandage of flannel were daily uſed from the toe to the wound.

From the time the ligature came away, the diſcharge gradually leſſened, and in the courſe of the month the wound was nearly healed; but it then putting on an ulcerating appearance, and ſoon after ſpreading cutaneouſly over a conſiderable portion of the thigh, I conceived that country air, and moderate exerciſe, might be highly beneficial to the patient. I accordingly

accordingly procured him a lodging at Lambeth, where I occaſionally attended him, and, in a months reſidence there, the whole ulcerated ſurface was intirely healed, and by gradual and moderate exertions he became able to work at his buſineſs as well as ever. I ſaw him about a week ago, and examined the limb, which was ſcarcely perceptibly larger than the other. The tumour in the ham, though much diminiſhed, remains in a flaccid ſtate, without the leaſt pulſation or pain; and he tells me he can uſe it in every reſpect as well as ever he could in his life.

The comparative heat of the ſound and of the diſeaſed limb was carefully aſcertained by means of a thermometer every evening *, for ſome days after the operation, and found to be as follows:

* On the evening of the day of the operation, the diſeaſed limb was found to be ſome degrees colder than the other; but as the exact degree of heat was omitted to be noted at the time, it could not be inſerted in the table. The bulb of the thermometer (Fahrenheit's) employed in theſe obſervations, was flat. It was applied each day on the ham and foot, and was continued for ſome minutes on thoſe parts before the degree of heat could be ſatisfactorily obtained.

Days

Days after the Operation	Temperature of the found Limb. At the Ham.	At the Foot.	Temperature of the diſeaſed Limb. At the Ham.	At the Foot.
1ſt.	96°	96°	95°	92°
2d.	94°	93°	97°	94½°
3d.	94°	94°	99°	96°
4th.	95°	94°	99°	95°
5th.	94°	93°	98°	95°
6th.	95¼°	94°	98°	96°

The temperature was thus taken for three weeks, and it was obſerved, that the diſeaſed limb became gradually leſs warm, compared with the other; and that at the end of that period both limbs became equal in heat.

CASE II.

Nicholas Tatterſhall, aged 37 years, was admitted into Guy's Hoſpital, under my care, on the 5th of June, 1793, for the cure of a large pulſating tumour, which occupied the whole of the hollow of the left ham, and appeared anteriorly in ſuch a manner, as almoſt to ſurround the lower part of the thigh; the leg and foot were alſo much enlarged and hard; the knee retained its motion, though every exertion of it was attended with pain in the tumour. The patient himſelf aſcribed the origin of his complaint

plaint to a ſevere blow from the helm in a ſtorm at ſea, which had diſabled him for a fortnight; and after that he had frequently, he ſaid, felt pain on any quick motion of the limb. It was about ſix weeks after the blow that he firſt diſcovered a ſmall throbbing ſwelling in the ham, preciſely at the place where he had ſo frequently felt the acute pain before mentioned; and this tumour had kept gradually increaſing in ſize and hardneſs till the time I ſaw him, which included a ſpace of fourteen months.

On carefully examining the tumour, and collecting the preceding account of it from the patient, I had no difficulty in pronouncing it to be an aneuriſm of the popliteal artery.

The patient being a very athletic ſtrong man, I ordered fourteen ounces of blood to be taken from his arm; an aperient medicine to be given him twice a week; and the warm bath to be had recourſe to every other day. I moreover put him upon an abſtemious diet. By purſuing this treatment for three weeks, he was conſiderably lowered and relaxed, and conſequently leſs liable to any high degree of inflammatory action; the tumour in the ham, however, and the general enlargement of the limb, remained much in the ſame ſtate as at his admiſſion.

Thinking him now in a favourable ſtate for an operation, I propoſed it to my colleagues in the hoſpital, Meſſrs. Lucas and Cooper, for whoſe opinions I entertain the higheſt reſpect. They intirely agreed with me in the neceſſity of an operation; and as I had ſo recently ſucceeded in tying the artery in the middle of the thigh, I propoſed that mode, to which they likewiſe aſſented, and they thought with me, that this was a very favourable caſe for ſuch an operation. I accordingly performed it on the 24th of June, preciſely in the ſame manner as in the preceding caſe; with this difference, however, in the reſult, that two muſcular branches of the artery were divided, and ſecured with the ligature and tenaculum before the main trunk was laid bare; I then opened the faſcia enveloping the femoral artery, and having paſſed a double ligature in an eyed probe with eaſe under it, applied the lint and ſtick as before; and for the ſame reaſons, which need not be here repeated, one ligature was drawn tight upon the artery, ſtick, and lint, and the other was placed about half an inch higher upon the artery than the other, and left looſe in order to be tied in caſe of hæmorrhage.

The ſymptoms of inflammation were much milder than in the former caſe, probably owing to

the

the precautions which I had taken to lower the patient during three weeks before the operation; for where the urgency of a caſe does not make an operation immediately neceſſary for the preſervation of the patient's life, I think it adviſable, previouſly to this, as well as to moſt other capital operations, to reduce the patient to that ſtate in which he is the leaſt liable to ſuffer from ſubſequent inflammation.

On the ſixth day after the operation, I found it neceſſary to dreſs the wound; the diſcharge was great, (but by no means equal in quantity to that in the former caſe) much leſs fætid, and the edges of the wound had a diſpoſition to heal; but the ligature, of courſe, prevented them.

As a knowledge of the comparative temperature of the limb operated upon, with that of the ſound one, the ſtate of the patient's pulſe, and of the atmoſpheric heat, were objects I conceived to be both uſeful and curious, I was anxious to have them accurately attended to. This taſk was readily undertaken by Mr. William Hall, of Glouceſter, who was then a pupil at the hoſpital, and on whoſe accuracy I knew I could rely. The annexed table, which contains the reſult of his obſervations, may therefore be

be depended on. As the atmoſpheric heat is perpetually varying, I thought we ſhould arrive at a greater degree of exactneſs if we prevented the acceſs of the common air to the bulb of the thermometer during the time of its application to the limb, by covering both limb and thermometer with flannel. This was carefully attended to every day, till both limbs ſhewed the ſame temperature, which they did in about a month.

After the firſt opening of the wound, it became neceſſary to dreſs it every day. On the fifth of July, the ligatures from the muſcular arteries came away; and on the ſixteenth, the ligature, ſtick, and lint came all away together, as in the foregoing caſe. I permitted the ſpare ligature to remain till the twenty-third, when conceiving that it occaſioned irritation, and of courſe excited diſcharge, I withdrew it; from this time the diſcharge gradually diminiſhed, and the wound was healed on the 28th of Auguſt. The ſwelling in the ham at this time was ſcarcely viſible; the leg and foot were become of their natural ſize, and the patient uſed that limb as freely as the other. He was diſmiſſed the hoſpital, and entered directly on board a ſhip of war.

TABLE.

Day of the Month.	Right Ham.	Left Ham.	Right Foot.	Left Foot.	Temperature of the Atmosphere.	Time of Day when the Observations were made.	Pulse at the wrist.
	Temp.	Temp.	Temp	Temp.			
June 24	96 °	95 °	79 °	78 °		3 o'clock, P. M.	80
	96	95	90	91		10 —— P. M.	140
25	99	98	93	95		9½ —— ——	94
26	102	96	93	82		9½ —— ——	100
27	98	94	88	81	66 °	10 —— ——	
28	101	97	94	91	70	9½ —— ——	105
29	99	96	93	90	72	9¼ —— ——	92
30	99	95	91	81	67	10 —— ——	86
July 1	98	95	94	84½	67	9¼ —— ——	72
2	99	97	93	88	69	9½ —— ——	74
3	98	97	95	90½	70	9½ —— ——	82
4	98½	97	95	93	69	10 —— ——	70
5	97	93	92	92	74	9½ —— ——	88
6	101	99	97½	99	79	9½ —— ——	88
7	100	98	97	97	81½	10 —— ——	84
8	99	96½	96	95	71	10 —— ——	74
9	98	97	94	93	70	10 —— ——	78
11	100	97	97¾	96	75	10 —— ——	80
12	99	98	97	96	75	10 —— ——	84
13	99	98	95¾	95	70	10 —— ——	86
15	101	98	96½	94	74	10 —— ——	86
16	Ligatures came away.						
17	100	97	98	96	75¾	10 —— ——	86
18	99	97	95	94	69	10 —— ——	74
19	97	96	90	82	68	10 —— ——	84
21	97	95	88	80	66	10 —— ——	72
24	94	92	93	89	75	8 —— ——	90
25	97¼	97	94	93	73	8 —— ——	80
27	98	97	93	85	66	9½ —— ——	86
29	98	98	84	80	66½	8 —— ——	90
30	98	98	94	94	67	9½ —— ——	86

II. *An Account of the good Effects of Opium in the Case of a Person poisoned by Digitalis. Communicated in a Letter to Dr.* Simmons, *by* Thomas Beddoes, *M. D.*

THE following case may perhaps be instructive to practitioners the first time they meet with a difficulty of the same kind.

A person, much emaciated and enfeebled, and labouring under anasarca and hydrothorax, took, by mistake, from two to four doses of an infusion of digitalis, more than were ordered for him. He had nausea during a considerable part of Tuesday night, which, by 10 o'clock on Wednesday morning, had increased so much, that every five or ten minutes he threw up a small quantity of bile, with the most dreadful retchings that can be imagined.

I had once, while I was a student of medicine, seen a much stronger patient destroyed by digitalis; but the practice of the physician who had the management of the case was exceedingly feeble and fluctuating. He only admi-

niſtered ſome ſlight opiates, a little port wine, and effervescing draughts.

From the weakneſs of my patient, and the terrible effects always produced by digitalis, when improperly adminiſtered, I entertained very ſlight hopes of his recovery. I reſolved, however, to attempt ſomething towards his relief. For a ſhort time I heſitated between opium and briſk emetics, (of white vitriol and muſtard ſeed, for inſtance) which laſt, I hoped, might change the action of the ſtomach and liver, induced by the digitalis. I determined in favour of opium, of which I ordered three grains to be given at two doſes; one immediately, and the other at the end of an hour; and afterwards fifteen drops of tincture of opium, every hour, in port wine, till the patient ſhould fall aſleep.

He doſed a good deal in the evening, and the vomitings had become leſs frequent by Thurſday morning, occurring never oftener than once in half an hour, and ſometimes only every hour and a half. The patient ſlept between each fit of ſickneſs, and always awaked with nauſea.

I gave him now ſixty drops of tinct. opii by clyſter, and three doſes of 8 grains of pulv. Ipecac. comp. made into pills with extract. cicut.

to

to be taken at the interval of two hours between each dose, and ordered the clyster to be repeated in the evening.

During the night he perspired copiously, always awaking sick; the sickness more infrequent, but sometimes attended with singultus.

On Friday he ceased to vomit bile; and as he seemed entirely under the influence of opium, no medicines were prescribed on that day.

Saturday—he had drank toast and water during the night, which agreed well with his stomach. He had no sickness this day; he had been able to lie down ever since Wednesday, which he had been utterly unable to do before, and his feet only swelled a little towards night. He now began to eat with a very keen appetite, and drank almost half a bottle of wine a day; he had before led a very abstemious life. The bark in substance, with aromatics, was ordered for him, and he took about half an ounce every other day, for four times. The swelling of his legs, towards night, went off, and he has now, for some time, been perfectly well.

This case shows that opiates may be freely administered to a person poisoned by digitalis. I dare not draw any bolder conclusion from a

ſingle caſe, but I would purſue the ſame plan of treatment under a ſimilar emergency.

P.S. The pulſe did not come down below ſixty; perhaps the opium counteracted the effect of the digitalis.

Briſtol Hot Wells,
July 14, 1793.

III. *Some Obſervations on the Diſeaſes that occurred on Board the Ship Europa, in the Service of the Hon. Eaſt India Company, during a Voyage from England to and from Madraſs and Bengal; by Mr.* John Watſon, *late Surgeon of the ſaid Ship, and now Surgeon at Wellingborough, in Northamptonſhire. Communicated to Dr.* Simmons, *by* John Lorimer, *M. D. Fellow of the Royal College of Phyſicians of Edinburgh, Phyſician to the Army, and to the Hon. Eaſt India Company.*

THE diſeaſes which prevail in the beginning of Southern voyages, have been ſo often

often pointed out, that I ſhould have thought it quite unneceſſary to offer any obſervations on the ſubject, if we had met only with the common prediſpoſing cauſes to combat with; but this, I have great reaſon to believe, was not our caſe.

A fever, which we carried out with us, joined its influence to the common inflammatory fever, which is almoſt always met with upon approaching a warm latitude in a crowded ſhip, and I believe was the chief cauſe of our continuing a ſickly ſhip during the voyage. The caſe I allude to, as the cauſe of this miſchief, is that of Samuel Hall, one of the ſhip's company, who had been ill ſome days before we left Graveſend *, with ſymptoms of fever, for which, in the beginning, he had little medical aſſiſtance. When I firſt ſaw him, which was not till about the tenth day from the commencement of the diſeaſe, he had a quick ſmall pulſe, with coſtiveneſs; a dry and parched tongue; hot and dry ſkin; and naufea. This man recovered, but continued, for ſeveral weeks, in a ſtate of convaleſcence; and, during this

* The Europa ſailed from Graveſend in January, 1792 and returned to England in April, 1793.

time, a ſimilar fever attacked every man in the birth he was in, and it was very obſervable, that wherever it ſpread, the whole of the birth or meſs, in which it made its appearance, were more or leſs affected with it. We were now approaching the line, and with nearly two hundred recruits on board, (all of them young men, unaccuſtomed to hot weather, and, in general, of plethoric habits) could not expect to be free from the complaints which uſually occur in ſuch latitudes, and more eſpecially in a crowded ſhip.

A fever began to ſpread itſelf among them, attended with the uſual ſymptoms; viz. an increaſed action of the heart and arterial ſyſtem, great thirſt, nauſea, a hot dry ſkin, and, generally, coſtiveneſs.

This diſeaſe, in the firſt inſtances, eaſily yielded to the common antiphlogiſtic plan; but as we advanced, I found, to my great mortification, that our number of ſick continued to increaſe; and that the fever, which at firſt had been merely inflammatory, now put on the appearance of a remittent, and was clearly epidemic. The recruits, from their ſituation on the orlop deck, were more affected than the ſhip's company,

company, who breathed a purer air, though the latter by no means eſcaped its effects *.

To render this ſituation more tolerable, as many as could be accommodated were brought upon the gun deck, where a platform was erected for them, and every mode that could be deviſed to remove the foul air from below, was made uſe of. Cleanlineſs, of courſe, was the firſt ſtep; and the next was, to dry up thoſe hot moiſt vapours, which are allowed to be ſo baneful, not only to the ſick, but even to the moſt robuſt and healthy. Fumigations, and waſhing with vinegar, were daily made uſe of; but the means I principally depended on, and which had the deſired effect, conſiſted in having ſtoves on the lower deck, that were gradually moved fore and aft, and occaſionally ſprinkled with nitre. The fire had the good effect of drying up the moiſt vapours,

* On the voyage Outwards, the ſhip's company conſiſted of 103; of theſe, 86 were ſick, and only one died; This death was in conſequence of a fall. The recruits and paſſengers from England were 158, to which were afterwards added, from Madraſs to Bengal, 270 more, making in the whole 428; and of theſe, 264 were on the ſick liſt, but only one of them died.

and the nitre ſupplied the ſick with good air. For a hint upon this ſubject, I am obliged to Dr. Lorimer, to whom, I am ſure, it will give pleaſure to be informed that it was attended with very ſalutary effects.

The fever, as I have before obſerved, changed its type, as we advanced to the ſouthward. Its general mode of attack was with rigors, head-ach, giddineſs, naufea, and vomiting of bile; a quick but not a hard pulſe, ſometimes fluttering and unequal; great pain in the loins, with laſſitude; a dry parched ſkin; eyes full, heavy, and yellow; and great thirſt. On the firſt attack I ordered ſome of the antimonial emetic mixture * to be given; and I obſerved, that, in general, the patient was relieved by it, whether a vomiting of bile was the conſequence or not, for that was not always the caſe. And I conceived, that ſome irritating matter (which perhaps had been ſwallowed with the ſaliva, and cauſed the naufea) was removed by the vomiting. An aperient antimonial mixture † was then

* *Miſtura Antimonialis Emetica.*
℞. Antimonii Tartariſati, gr. xvj
Aquæ Puræ, ℔i. M.

† See the note in page 32.

given,

given, until it had operated by ſtool, by which time, generally ſpeaking, a gentle perſpiration had taken place, and then the bark was immediately adminiſtered in as large doſes as the ſtomach would bear. The very early exhibition of this valuable medicine, I think, never had a fairer trial, than I had an opportunity of giving it; and the ſucceſs was equal to my moſt ſanguine expectations, for in no one caſe did it fail, although I had, at one period of the voyage, upwards of ſeventy patients making uſe of it, and that for a conſiderable length of time, having had a conſtant ſucceſſion of them. One patient only died, viz. J. Thompſon; but even in this inſtance the failure, I am of opinion, ought not to be aſcribed to the bark. The caſe itſelf was attended with ſingular circumſtances, and as it ended fatally, I have tranſcribed it from my diary, and ſhall inſert it at the end of my paper *, with the addition of one of the ſucceſsful caſes †, in order to give a more perfect idea of the nature of the fever.

If we, for a moment, conſider the ſingle circumſtance of ſo many people confined in a

* See Caſe I. page 38.

† See Caſe II. page 41.

ſmall

ſmall place with fevers, it will not appear extraordinary that one ſhould die, but that ſo many ſhould recover; for during our paſſage to Madraſs, three hundred and fifty perſons were at different times affected.

In general, the bark was given within thirty-ſix hours after the firſt attack; very often in leſs, and ſeldom later than forty-eight hours. If the ſtomach retained the firſt two or three doſes, (which were given hourly) it generally brought on a diſtinct remiſſion; and in four or five days the patients were left in a convaleſcent ſtate; and then the bark was adminiſtered (but in leſs frequent doſes) with wine. To recover them from this convaleſcent ſtate, required ſome attention; and their diet was regulated with as much care as poſſible; for although our powers were very limited, yet it was found that much might be done by attention, and that the different proviſions which are allowed, might be ſo managed, as to render them much more conducive to health than the general mode of uſing them is, and, at the ſame time, quite as grateful. Salted proviſion, for men in their ſituation, was evidently very improper; but unleſs we could ſatisfy them with ſomething elſe, it was impoſſible to prevent their uſing it. For this purpoſe,

I or-

I ordered a ſoup to be made, by cutting up and boiling one piece of ſalt beef, which had been previouſly waſhed, in a great quantity of water, and afterwards thickening it with oatmeal and barley. This made a tolerably grateful and freſh ſoup; at leaſt it gave ſo much the appearance of ſoup to the gruel, as to induce the patients to eat it with ſatisfaction; and I had the pleaſure of ſeeing them recover by this kind of management.

The neceſſary attention to ſo many people, could not fail, as may be eaſily conceived, to take up the time of myſelf and aſſiſtant (Mr. Walker) very completely. There was, indeed, ſcarcely a moment in which one or both of us were not employed in viſiting the ſick, in adminiſtering medicines to them, or in attending to other duties equally neceſſary. By other duties, I mean the attending to the execution of every plan which could be conducive to cleanlineſs, good order, and a free circulation of good air; for I cannot help conſidering theſe as the firſt and great cauſes of health, or diſeaſe, on board a ſhip, and without them medicine will avail but little. Theſe avocations, as I have juſt now obſerved, ſo completely employed us,

that

that it was impoſſible to be very minute in each day's report. Any material alteration was, indeed, noticed in the diary; but in general, only the ſtate of the fever, and medicine given, were noted. Both myſelf, and Mr. Walker (whoſe great aſſiduity and attention to the ſick I ſhall ever remember) frequently felt the effects of the fever; for my own part, I never, for ſome time, came up from viſiting them, that I did not experience headach and a quickened pulſe. The only precautions I made uſe of, conſiſted in keeping my ſtomach and bowels clear, and in taking occaſionally a little bark. By theſe means I lived, as it were, in the midſt of fever for three months, without experiencing any other effects of it than thoſe I have juſt now mentioned; and Mr. Walker, who adopted a ſimilar plan, was equally fortunate.

We ſtopped at St. Jago, one of the Cape de Verd iſlands, with the hopes of procuring a ſupply of fruit and other refreſhment; but here we met with a diſappointment, owing to a drought which had prevailed in the iſland during three or four ſeaſons, ſo that we left it without deriving much advantage from our viſit.

From thence we proceeded to Madraſs, without

out ſtopping any where, and had rather a tedious paſſage; the fever gaining ground in point of numbers all the time, but without being attended with any fatal conſequence, except in the ſingle caſe already related.

In the month of June, (at the latter end of which we arrived at Madraſs) ſeveral of our convaleſcents were attacked with ſcurvy, but not in any very material degree; the very few antiſcorbutics we had, were made uſe of, and the diſeaſe was kept under till our arrival, when the ſick were all ſent aſhore, and remained there till the 18th of July, when they again embarked for Bengal, with a detachment of His Majeſty's 76th regiment.

During our ſtay at Madraſs, every means were made uſe of to remove, if poſſible, diſeaſe from the ſhip, by waſhing and fumigating every part of her. But our ſhip's company ſtill continued ſickly, ſo that on our arrival at Diamond harbour, the ſick liſt was upwards of twenty. The unhealthy ſituation of this place is well known; but the hoſpital, though placed on ſo unhealthy a ſpot, has all the advantages that could be given to it. It is raiſed conſiderably, and ſtands upon arches; and the ground

near

near it is drained as much as poſſible; but ſtill it is a marſhy ſituation, and the patients cannot fail to be affected by the low ſwampy grounds which ſurround it for ſome miles.

Notwithſtanding it was not ſo eligible a place as could be wiſhed, it was thought more adviſable to have our ſick there than in the ſhip, for two reaſons; firſt, for the ſake of ſeparating the ſick from the healthy; and ſecondly, to give an opportunity of effectually cleaning the ſhip. Thoſe who were removed from the ſhip to the hoſpital, (which at this time was empty, ſo that we could give them large accommodation) very ſoon benefited by the change; others, who were taken ill whilſt we remained there, were not ſo fortunate, as their complaints were in general aggravated by their intemperance. Their principal complaints were fevers of the remittent or marſh kind, attended with bilious vomiting and purging, and great tendency to dyſentery. In moſt of theſe caſes there was a greater or leſs tendency to delirium, in proportion as the patients were more or leſs of a plethoric habit. In ſeveral of theſe the pulſe was ſo full and hard, that I ſhould have been induced to take ſome blood from them,

had I not ſeen the ill effects of it, even in very ſmall quantities, during a former voyage, under ſimilar circumſtances. In general, the early exhibition of the bark was very effectual, provided proper attention was paid to the ſtate of the ſtomach and bowels. The aperient antimonial mixture * was what I principally made uſe of to clear the ſtomach and bowels, and in general it had the good effect of doing both, and, at the ſame time, excited a gentle diaphoreſis; the bark was then given freely, but, I obſerved, if it had not a good effect in a few days, the diſeaſe became obſtinate, and generally ended in viſceral obſtruction; to remove which it was neceſſary to uſe mercury, which ſeldom failed to produce the deſired effect. Theſe caſes were alſo frequently cauſed by relapſes, in conſequence of thoſe irregularities which it is impoſſible to prevent ſeamen committing.

In the month of September, dyſenteries, accompanied with fever, were frequent. In many of theſe caſes, alſo, after proper evacuations, the bark was given freely. In ſome other caſes of dyſentery, I found the uſe of diapho-

* See the note in page 32.

retics

retics very efficacious. This mode of treatment conſiſted in giving ſuitable doſes of the antimonial aperient mixture* during the day, which ſometimes excited vomiting, but always cauſed copious ſtools, and generally brought on a gentle diaphoreſis; this was encouraged by warm diluting liquors, and in the evening a pill was given, compoſed of one grain of opium, and gr. $\frac{1}{8}$ of antimon. tartariſat. In the morning the mixture was again had recourſe to, and this plan was continued till the bowels were relieved, and the ſtools were become more natural, after which the antimonial opiate only was given.

Upon leaving Bengal, to return to Europe, our complaints were principally intermitting fevers, the remains of the marſh fever, which had taken that type; dyſenteries; viſceral obſtructions; and inflammations, principally of the

* *Miſtura Antimonialis Aperiens.*
℞. Antimonii Tartariſati, gr. ij.
Mannæ, ℥ſs.
Cremor. Tart. ℥ij.
Kali Tartariſati, ʒiij.
Spir. Æther. Nitr. ʒij.
Aquæ Puræ, ℔ſs. M.

liver,

liver, but often of the ſpleen and meſenteric glands.

Every opportunity I have had of obſerving the diſeaſes of hot climates, confirms me in the opinion I have long held, in common with many other medical men, that the great ſource of health or diſeaſe, in hot climates, is centered in the natural or diſeaſed condition of the liver; and that every chronic diſeaſe ariſes, in a conſiderable degree, from ſome defect of that viſcus. In many acute diſorders, alſo, this organ has its ſhare; and in every kind of ſickneſs, whether local or general, that is peculiar to hot climates, it is material to examine it; for no perfect cure, I am perſuaded, can be made, or a relapſe prevented, without having a ſtrict eye to it. Fluxes are frequently cauſed by obſtructions of this viſcus, and however they may be palliated, can never be cured, without firſt removing the ſource of the diſeaſe, in the liver, which, I believe, is only to be done by mercury.

In our voyage outwards, ſeveral of our men had frequent relapſes of fever, attended at times with a flux, which I never could totally remove, till I joined mercury with the bark. This proved efficacious in promoting good ſecretions,

and conſequently more natural ſtools; and the fever afterwards gave no trouble. In all thoſe patients I found the urine much affected, as, indeed, it is in all caſes where bile prevails.

A long-continued uſe of the bark has been ſaid to occaſion theſe complaints; but, I think, with great injuſtice. It is certain, that we cannot remove the cauſe of the fever or flux by means of the bark alone; but in the many caſes in which I have given it, combined with mercury, I never could perceive any ill effect from it; on the contrary, the diſeaſe has yielded to their united powers, and I have thought that the patient was leſs reduced, than by uſing mercury alone.

In fluxes only, proceeding from obſtructed liver, the bark will ſeldom be neceſſary; but in ſuch caſes, if there be a diſpoſition to fever, it will generally be found uſeful, more particularly ſo if given a day or two before the ſpring tides; for at thoſe periods the diſpoſition to fever will always be found to increaſe, and conſiderable advantage will ariſe from attending to this circumſtance. I experienced this, not only whilſt we were lying in Diamond harbour, but during the whole paſſage from Bengal to the Cape of Good Hope.

As

As we advanced to the Southward, the ſcurvy began to make its appearance on board, more particularly among the convaleſcent, and thoſe who had lately recovered from fevers.

If we reflect a moment upon a diet ſo deprived of nutritious powers, as ſalt beef and biſcuits, with a ſmall allowance of water, we cannot be at a loſs to account how eaſily ſuch a diſeaſe as the ſcurvy might ariſe in the habit, even of thoſe who had before enjoyed health, much more ſo of thoſe whoſe blood had been impoveriſhed by diſeaſe. And here I cannot but lament, that there is not a more liberal allowance of thoſe things, which have been found to be ſo beneficial in counteracting the effects of this dreadful diſeaſe; for as the cauſes, before mentioned, are not the only pre-diſpoſing ones, but are much aſſiſted by a moiſt cold air, it naturally follows, that upon a change of air we have not ſo much to combat with.

Inſtances I have repeatedly ſeen, where the ſcurvy has attacked numbers in a ſhip going round the Cape of Good Hope; but upon ſtanding to the Northward, and having a clear dry air, with ſtrict attention to their diet, cleanlineſs and exerciſe, and giving as largely of the antiſcorbutic proviſions as could be al-

lowed, the diſeaſe has been removed. And when it is conſidered, that by proper management it would be attended with very little, if any, additional expence, to put on board a ſufficient quantity of ſuch proviſions, it leads me to hope, that it is only neceſſary to point them out, in order to their being adopted. The known humanity and liberality of the owners in general, warrant ſuch a ſuppoſition.

If they would take the trouble of examining any of their ſurgeons upon this ſubject, who have been long enough in the ſervice to experience the want and to ſee the utility of theſe things, I doubt not but ſuch regulations would take place as would be very gratifying to a humane mind, and beneficial to the ſervice in general.

With reſpect to the mode adopted for the relief of thoſe who were affected with this complaint, I have only to obſerve, that a diet was formed as void of putreſcent things as poſſible. They had plenty of acidulated liquors, and were recommended to uſe as much exerciſe as poſſible. The only alarming ſymptom was a dyſpnœa, which many of them were affected with, and which I found was greatly relieved by camphor, given in the form of a bolus. This was almoſt

the

the only medicine I gave them; it generally cauſed a gentle perſpiration, and relieved their breathing.

Upon our arrival at the Cape of Good Hope, on our voyage homewards, the ſick were plentifully ſupplied with vegetables and ſoup, which ſoon recovered them. A few of them remained in a convaleſcent ſtate for a little time; but the very ample allowance of freſh proviſions, which was ſerved out for a conſiderable time afterwards, removed every appearance of ſcurvy, and we became at length a healthy ſhip; ſo that after we left St. Helena, we ſuffered very little inconvenience from diſeaſe.

We were ſo fortunate as to meet with few accidents that required chirurgical aſſiſtance; and thoſe we did meet with were attended with no circumſtances worth relating; therefore I have not thought it neceſſary to mention them in this brief account of the diſeaſes we had to encounter with.

CASE I.

May 24th. John Thomſon, aged thirty years, was attacked with ſymptoms of fever, viz. a quick full pulſe; giddineſs; great headach; nauſea and vomiting; heat and dryneſs of the ſkin, and great thirſt. He was directed to take the emetic antimonial mixture *.

25. The emetic brought up much bile; the headach was now leſs violent; body coſtive; other febrile ſymptoms as yeſterday. He was ordered to take of the aperient antimonial mixture † every two hours, till a ſtool ſhould be procured.

26. Symptoms as yeſterday. Medicines repeated.

27. Fever continued, with coſtiveneſs. The mixture was repeated, and a purgative clyſter adminiſtered. Stools being procured by theſe means, recourſe was had to the following mixture, of which, from an ounce to an ounce and a half, was given every hour.

* See page 24. † See page 32.

℞. Pulv.

℞. Pulv. Cort. Peruvian. ʒiiſs.
Tincturæ ejuſdem ʒiij.
Aquæ Puræ, ℔ij. M.

28. A ſlight remiſſion; pulſe better; body natural. The bark mixture was continued.

29. He was free from fever all night, and continued the uſe of the bark till about four o'clock, P. M. when a ſudden proſtration of ſtrength took place; the pupils of the eyes were much dilated, and he appeared comatoſe; but his pulſe continued good, and he perſpired freely. Towards midnight, however, his pulſe ſunk conſiderably. A bliſter was applied between his ſhoulders.

30. He continued comatoſe, but ſeemed at times ſenſible; refuſed every thing offered to him; his pulſe was rather quicker; the bliſter roſe.

June 1. He appeared to be more ſenſible, but his pulſe was quick and low. He took liberally of a camphorated mixture, decoction of bark, and Madeira wine.

2. He was much the ſame as yeſterday. The ſame plan of treatment was continued.

3. The ſymptoms, in general, were worſe; he had taken very little medicine during the

night, and ſwallowed what he did with difficulty. Took his medicines and Madeira wine alternately; his extremities were cold; ſinapiſms were applied to the feet.

4th, 5th, and 6th. No material alteration.

7. Continued in the ſame ſtate. As he had not had a ſtool for ſome days, an enema was given, and his medicines and wine were ordered to be continued.

8. The enema procured ſeveral copious and very fetid ſtools. He appeared more ſenſible; took his medicines and wine in the night.

9th and 10th. On each of theſe days was free from fever, but continued the uſe of his medicines.

11. In the ſame ſtate; refuſed his medicines.

12. Very low, but appeared more ſenſible; refuſed every thing that was offered to him.

13. Refuſed his medicines, but took wine frequently; ſome livid blotches appeared over the trochanter major, os ſacrum, and lower vertebræ lumborum. Had a very fetid ſtool this morning.

14. Pulſe very feeble.

15. Pulſe continued to ſink all night, and he expired about four, A. M.

In this case the bark was not given quite so early as in the generality of the other cases, owing to an obstinate costiveness during the first three days of the fever; but when it was given, it appeared to have a good effect. I am unable to account for the sudden change in this case, at a time when I was beginning to flatter myself that the patient was out of danger. Had this change taken place sooner, it might by some, perhaps, have been imputed to the evacuations by stool, which were rather copious, but they had taken place two days before, and the patient had been free from fever that day, and had a tolerable pulse; but from the moment the fatal alteration commenced, the pulse began to sink, and continued to do so till he expired.

CASE II.

April 11, 1792. Lat. 13. 52. S. Long. 30. 46. W. James Armand, aged twenty years, and rather of a full habit, was taken with the usual train of febrile symptoms, as headach, great pain in his loins, and nausea. He was ordered an antimonial emetic.

12. The

12. The emetic operated well. The ſymptoms of fever continued. Four grains of pulv. antim. were directed to be given every two hours.

13. The medicine had operated both upwards and downwards. The nauſea and febrile ſymptoms were as before. The antimonial was repeated, and after it had operated, the bark mixture was given frequently.

14. The febrile ſymptoms were abated. The uſe of the bark was continued.

15. He had an increaſe of fever in the night. The bark was continued.

16. He had leſs fever. The ſame medicine was continued.

17. The ſymptoms were about the ſame as yeſterday. He continued the uſe of the bark.

18. He was free from fever. The bark was continued.

19. He had a ſlight return of headach, with nauſea, and took ſome of the aperient antimonial mixture.

20. The antimonial brought up much bile, but procured no ſtool. He had an exacerbation of fever in the evening. The bark mixture was repeated frequently.

21. He had leſs fever. The uſe of the bark was continued.

22. Symp-

22. Symptoms the ſame as yeſterday, till the evening, when he had a return of ſickneſs and fever. The antimonial aperient mixture was ordered to be repeated on the morning of the 23d.

24. The medicine had operated freely. He had a remiſſion this morning, and continued to take the bark mixture frequently.

25. He had ſome fever in the night. The ſame medicine was continued.

26. He was free from fever.

From this time to the 30th, he continued to take the bark with wine, and perfectly recovered.

In this caſe nothing particular occurred different from the general run of fevers, which we had at this time, except a greater diſpoſition to bile, than I generally met with. This made it neceſſary to continue the antimonials longer, and even to recur to them after giving the bark.

Wellingborough,
July 1, 1793.

IV. *Case of a compound Dislocation of the Tibia and Fibula, accompanied with a Fracture and Loss of a considerable Portion of the Astragalus, and likewise with a Fracture of the Thigh Bone; with Remarks. By Mr.* James Rumsey, *Surgeon at Amersham in Buckinghamshire.*

ON the 21st of June, 1792, Mr. Tolson, aged forty years, a reputable tradesman in New Bond Street, Westminster, was thrown from a curricle on Gerrard's-Cross Common, eight miles from this place, in consequence of the horses taking fright, and drawing the carriage with great velocity against a tree. The injury he received from this accident consisted in a compound dislocation of the tibia and fibula at the outer ancle of the left leg, with a fracture of the astragalus, (the superior half of which was attached to the dislocated bones of the leg) and likewise (though, as we shall see, not immediately noticed) a simple fracture of the os femoris on the same side. He was immediately conveyed to a friend's house on the common, where he had the advantage of an airy, healthy situation, with every kind domestic attention the family could administer.

I saw

I saw him about two hours after the accident, and found the bones protruding at the ancle through a very large wound, with the foot turned inwards and upwards; and the integuments, beneath the wound, exceedingly confined by the dislocated bones, which descended nearly to the bottom of the foot. A considerable hæmorrhage had taken place, but was stopped by the spontaneous contraction of the lacerated vessels.

From such a formidable accident in so large a joint, there appeared very little probability of the patient's recovery, without immediate amputation. I therefore requested that a consultation with some other surgeons might be expeditiously held on the case, and expresses for this purpose were accordingly sent to Mr. Pearson, surgeon in London; and to my brother, Mr. Henry Rumsey, surgeon at Chesham, in this county. While I was waiting for their arrival, the patient requested me to examine his thigh, which till then he had not particularly noticed, when I plainly discovered an oblique fracture of the os femoris, at its superior part. This additional evil appeared to me a great obstacle to an amputation.

My brother, when he arrived, being of a similar opinion, I attempted to reduce the fractured dislocated joint into its proper situation.

This

This I found very difficult to effect, without firſt ſeparating that part of the aſtragalus which was pendulous to the tibia, having its capſular ligament lacerated one half way round the joint *; I therefore removed it without heſitation, being perſuaded, that if it had been practicable to reduce it into its original ſituation, ſo large and moveable a portion of bone would have been a ſource of pain and irritation, and have rendered the cure more difficult and uncertain.

I then divided that portion of the integuments of the foot which was confined by the protruded end of the tibia, which enabled me with eaſe to reduce it and the fibula into their proper ſituation. I applied ſome doſſils of lint, dipped in tincture of opium, to the wound, and covered the whole with a poultice of ſtale beer and oatmeal. We now reduced the fractured fe-

* This portion of the aſtragalus conſiſts of the broad ſmooth head by which it is articulated to the tibia; of almoſt the whole of the inner and outer ſides of this head by which it moves on the inner and outer malleoli; and of about the upper half of the poſterior cavity on its under ſurface, by which it is united to the os calcis; ſo that the bone was divided nearly horizontally, and the part left behind conſiſts of the lower half of the laſt-mentioned cavity, and of the whole of the other or anterior cavity which connects it with the os calcis; and of the anterior portion or proceſs by which it is articulated to the os naviculare.

mur,

mur, and placed the limb in the bent position, expecting that our greatest success would be in procuring a complete anchylosis, the failure of which, I concluded, would leave a useless foot. The under splinter was a firm excavated piece of deal, of the shape of the leg and foot, with a hole opposite the ancle.

Mr. Pearson arrived in the evening, and approved of the preceding treatment, giving it as his opinion that it would be safer to attempt the preservation of the limb, than to amputate under such complicated circumstances. The wound was concealed as much as possible from the external air, and the cataplasm renewed no oftener than the discharge rendered necessary.

22. The preceding night had been very painful, with delirium and vomitings; the pulse was full and frequent; I took away ten ounces of blood, and gave Kali Tartarisat. and Manna, in doses sufficient to procure stools. A common saline draught, with antimonial wine and tincture of opium, was given every four hours, and a fuller dose of tincture of opium at bed-time.

23. The vomiting continued; the ancle and thigh had been less painful through the night; the saline draughts were continued, but without

out the antimonial, on account of the vomiting. During this period the antiphlogiſtic regimen was ſtrictly adhered to.

24. The night had been tolerable; the vomiting had ceaſed; the pulſe was ſofter; the ſaline draughts were continued, with the opiate, at bed-time. This evening the leg was very painful.

25. He had had a pretty good night; a diſcharge from the wound now commenced, and the tenſion of the muſcles of the thigh began to diminiſh.

26 and 27. The ſame treatment was continued. The diſcharge increaſed, and the tenſion of the thigh was much abated.

28. The ancle was much ſwelled and inflamed; I therefore exchanged the beer grounds in the cataplaſm for the *Aq. Litharg. Acetat.* The patient had this day much pain in the bowels from flatulence; from which circumſtance, and that of the diſcharge being very thin, it was judged expedient to vary his mode of living, and likewiſe his medicines.

29. He was allowed a ſmall portion of animal food, ſome table beer, and ſome port wine; and he took the bark liberally, both in ſubſtance and decoction. This change of treatment agreed with him perfectly well. At this time I found it neceſſary

neceſſary to alter the poſition of the limb, on account of the preſſure on the wound, occaſioned by its laying in the bent poſition, and the pain it gave in turning to dreſs it, which, from the copious diſcharge, there was now a neceſſity of doing night and morning. I therefore placed it on the heel, uſing the common deal flexible ſplint, of the length of the limb, and confined it in a box, whoſe ſides and lower end let down. The ſpace between the ſides of the box and the ſplint was filled with pieces of flannel. By theſe means, and the uſe of the eighteen-tail bandage, the dreſſings were applied with very little diſturbance to the leg, whereby the patient eſcaped much pain: the upper end of the box under the ham was raiſed; which gave the muſcles ſome degree of flexion, and, at the ſame time, was favourable to the diſcharge.

The foot having a tendency to fall inwards, and the end of the fibula to protrude through the wound, it required great attention to prevent the deformity the neglect of theſe circumſtances might have occaſioned. The mode of prevention I adopted, and which proved ſucceſsful, conſiſted in employing a number of ſmall deal wedges, about ſix inches long, two broad, and a quarter of an inch thick; as many of theſe as

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were found sufficient were placed opposite the inside of the foot, between it and the side of the box; others in the same manner on the outside of the calf of the leg; by which means the limb was kept steady: and by placing the heel easy, and rather hollow, none of the usual evils arising from pressure on the heel occurred.

30, The bark agreed very well; the opiate was continued at bed-time; the discharge was great, but more purulent; the pulse was become softer and less frequent; and the urine, which hitherto had been clear and very high coloured, was now turbid: the pain and inflammation being much diminished, the cataplasm was discontinued, and the wound dressed with dry lint, with a pledget of *Cerat. Litharg. acet. c.* over it, and a moderate compression was made by means of the bandage. From this period the wound progressively mended; the discharge diminished; granulations formed; and the surrounding skin began to heal. The use of the bark and of the opiate was continued till the beginning of August. About the end of July the progress of the cure was retarded by matter, collected under the integuments above the inner ancle, which, on pressure, came out at the wound. After trying the effects of permanent

nent preſſure, for the prevention of this depoſit, in vain, I made an inciſion into the cavity, and filled it with dry lint to produce inflammation on its internal ſurface, which perfectly conſolidated it; and from this time the wound rapidly healed, and became perfectly cicatriſed by the middle of September, without any exfoliation of bone, larger than the head of a pin, having taken place.

The fracture of the femur went on very well, excepting that the obliquity of it, with the impoſſibility of producing a permanent extenſion, on account of the leg, occaſioned a degree of curvature, which it otherwiſe would not have had.

The limb gradually acquired ſtrength; and it is a very remarkable fact, that the patient is now able to walk very well, with only the aid of a ſmall ſtick, and even this aſſiſtance he will probably not require long. There is no anchyloſis to render the ancle immovable; but a ſufficient firmneſs has been produced in the ſurrounding parts, by the long-continued inflammation, to aſſiſt in the formation of an artificial joint, which poſſeſſes a degree of motion nearly equal to that of the natural one.

The result of this case affords an additional argument against immediate amputation in cases of bad compound fracture; a subject on which surgeons, eminent in their profession, have been much divided.

The impure air of London and other great cities, but more particularly of large hospitals in such situations, probably renders these accidents more generally fatal there than in the country; and the constitution of many patients is, no doubt, more endangered in cities, by the long-continued copious suppuration consequent to extensive injuries, than it would be by amputation; and cities being commonly the residence of the most eminent men, these circumstances may have occasioned some of them to lay it down as generally necessary to amputate in cases of bad compound fracture: but in the country I should ever attempt to save the limb, except in cases where the division of large blood vessels, or a considerable loss of the muscles, should call for immediate amputation. I believe that many of those cases which prove fatal without the operation, would have a similar termination if it were performed, and *vice versa*. The cause of their fatality seems oftentimes to depend on

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ſomething unfavourable in the habit of body; and this renders it neceſſary for the ſurgeon to diſcover, as clearly as he can, the preceding ſtate of his patient's health, and very ſtudiouſly to watch the progreſs of each day in the early part of all formidable accidents, as this only can direct him in what degree he is to adopt, and how far continue, the relaxant, antiſeptic, or tonic modes of treatment; as in caſes of this kind, no one general rule of conduct will be equally ſucceſsful.

The ſame attention will be neceſſary to be obſerved reſpecting the local treatment, that irritation and pain may be avoided as much as poſſible.

The poſition of the limb in compound fracture muſt depend on the ſituation of the wound. In ſimple fracture, during the proceſs of ſwelling and inflammation, great advantage reſults from the bent poſition, which is certainly leſs painful, from the muſcles being relaxed; but when the tenſion has entirely ſubſided, I confeſs I keep the fractured ends of the bones better in their place by the ſtraight poſition; and the time of confinement being divided in the two ſituations, the patients generally bear it better; and when

the union is perfect, flexion may be again permitted with propriety.

Amersham,
March 31, 1793.

V. *A Case of violent Distortion of the Foot, occasioned by a Rotation of the Astragalus, in consequence of a Fall, and accompanied with a Laceration of the Integuments at the outer Ancle, and Exposure of a Portion of the Fibula. Communicated in a Letter to* Dr. Simmons *by Mr.* William Guy, *Surgeon at Chichester.*

IF any apology be necessary for my wishing to see the following history inserted in the next Volume of Medical Facts and Observations, I apprehend it is furnished by the circumstance of two cases of the same kind having happened in this neighbourhood, in both of which amputation was judged necessary, and performed.

I was desired by a surgeon to visit a young gentleman who had received a severe hurt in the foot, in consequence of his horse having reared

reared up and fallen on him; the injury appeared of ſuch magnitude, that the ſurgeon had little doubt but that amputation would be neceſſary. I ſaw the patient in about four hours after the accident, during the whole of which time he had ſuffered excruciating pain; his left foot was wrenched round, ſo as to deſcribe a quarter of a circle, in which poſition it remained, reſting (as the patient lay on his back) on the great toe, and forming a right angle with the inner ſide of the tibia. The violent and ſudden diſtortion of the foot was ſuch, that the integuments were torn over the outer ancle, leaving about two inches of the fibula expoſed.

Though appearances were ſo formidable, there was reaſon to hope that the real injury ſuſtained by the parts concerned, was not anſwerable to them: a violent diſtortion had happened, but there was no luxation; the aſtragalus, and conſequently the foot, had only undergone a rotation; and the laceration was cauſed, not by any diſplacement of the fibula, but by the integuments being violently ſtretched and torn over the head of that bone.

Impreſt with theſe ideas, we made a gentle extenſion of the foot, and replaced it without

the leaſt difficulty in its natural ſituation; the integuments being thus relaxed, as readily returned over the head of the fibula, and the lips of the wound came nearly in contact; ſoft, eaſy dreſſings were applied, and the leg and foot were fomented with flannel cloths, wrung out of hot water, and laid on the limb, all motion being carefully avoided; ſome blood was drawn, an opiate adminiſtered, and the antiphlogiſtic regimen ſtrictly enjoined. In a very ſhort time the patient fell into a profound ſleep, in which ſtate he continued ſeveral hours; he awoke much refreſhed and tolerably eaſy; no conſiderable pain or ſwelling enſued; at the end of the month he was able to ride on horſeback, and with the aid of a ſtick could walk pretty well; and in leſs than three months after the accident he recovered the perfect uſe of the joint.

It will clearly appear to any one, on examining the ſkeleton, that the ligaments of the joint were not ſo much ſtretched in this caſe as in a luxation; and that the aſtragalus, when turned round as above deſcribed, is almoſt as well adapted to the cavity of the inferior extremity of the tibia, as when in its natural poſition; the head of the fibula covering the poſterior inſtead of the lateral part of the aſtragalus, and

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the lower extremity of the inner ancle falling into a ſmall depreſſion of the anterior part of the ſame bone.

Chicheſter,
October 20, 1793.

VI. *Caſes of the Urticaria or Nettle Raſh, with Obſervations; by* T. M. Winterbottom, *M. D. Phyſician to the Settlement at Sierra Leone: communicated in a Letter to* Robert Willan, *M. D. Phyſician in London, and by him to Dr.* Simmons.

A Black woman, aged thirty-ſix years, ſtrong and healthy, after having eaten of a fruit which ſhe found in the woods, in form and ſize reſembling a damſon, and for which ſhe miſtook it, was next morning affected with a ſenſe of uneaſineſs and liſtleſſneſs over her whole body, accompanied with nauſea and oppreſſion at the præcordia; and with a ſenſation of creeping over the whole body, which was followed by a general tumefaction, eſpecially of the face.

The

The noſe was remarkably ſwoln, hot, itchy, and painful, particularly the alæ naſi; the upper lip was alſo much tumefied. She moreover complained much of a ſoreneſs in the throat, attended with a troubleſome tickling and ſenſe of conſtriction of the fauces, which rendered deglutition difficult. About the ſame time an eruption took place over the whole body, more eſpecially on the neck, breaſt, and arms, of large red ſpots elevated above the ſkin, very hot, and intolerably itchy. On becoming warm in bed ſhe felt as if ſtung all over with nettles; and the ſpots at that time appeared more numerous. The next morning ſhe took a doſe of *ſal. cathart. amar.* after the operation of which the tumefaction of the body was entirely removed, and the affection of the throat was very much relieved.

The eruption was much diminiſhed in the courſe of the day, but did not entirely diſappear until three or four days after, upon taking a ſecond doſe of the ſalts. The itching continued troubleſome for a week or two longer, and was always aggravated during the night.

Her huſband, who had eaten of the ſame fruit, was ſimilarly affected, except in feeling

but

but little ſoreneſs of throat, and in having his face more ſwoln, eſpecially the lips.

A woman and child, whom I did not ſee till after their recovery, were affected, according to their own report, in nearly the ſame manner, from eating the ſame kind of fruit; they recovered without any other medicine than a doſe of purging ſalts.

The tree which bears this fruit is, I believe, hitherto undeſcribed; the fruit, when ripe, is not unlike a damſon, having a ſtone within, being black, and of a ſweetiſh taſte. Its juice, which at firſt is nearly colourleſs, gives a very durable black or dark-brown colour to linen.

An eruption ſimilar to the above occurs from a variety of ſubſtances taken into the ſtomach; it is commonly termed a ſurfeit, or by the vulgar in ſome parts, poiſoning. This may depend either upon an idioſyncracy with regard to certain articles of diet, as crabs, and ſome other ſhell fiſh*; or it may ariſe from a mixture of different

* A man was always affected with urticaria after eating crabs, whether boiled or in ſoup; he was affected thus even by the vapour which aroſe from them; as alſo by taking the lap. cancr. Dr. Tode, from whom this is quoted (Med. chir.

different ſubſtances in the ſtomach, producing a noxious compound, though any of them ſingly would be harmleſs. Of this, Salmon, taken along with milk, affords an example.

Under the former head, perhaps nothing is more curious than the effects of the vegetable bitter. I have myſelf been twice violently affected by eating the ſweet Almond: the firſt time, within a few hours after eating this fruit, though in no great quantity, I was ſeized with ſlight nauſea, uneaſineſs in the ſtomach and bowels, without any fixed pain; great reſtleſſneſs and increaſed heat. Theſe ſymptoms were ſoon followed by an oedematous ſwelling of the face, eſpecially of the lips and noſe, which were extremely hot and itchy. There was, at the ſame time, an uneaſy tickling ſenſation in the throat, which excited a troubleſome cough and a conſtriction of the fauces, which ſeemed to threaten ſuffocation. The tongue likewiſe became enlarged and ſtiff, cauſing a flowneſs and faultering in the ſpeech. Soon after going to bed, an

chir. bibl.) obſerves that he is himſelf frequently, though not always, affected with a ſlight urticaria after eating crab ſoup. — A woman by eating ſtrawberries was conſtantly affected with urticaria. See Vogel's Handbuch der Pract. Arzneywiſſenſchaft, vol. 3, p. 277.

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eruption took place over the whole body, of ſpots nearly as large as a ſixpence, of a dead white colour, a little elevated above the ſkin like the wheals produced by the ſting of a nettle, and intolerably itchy. In their interſtices the ſkin was of a high red colour; the whole body was alſo tumefied, though in no great degree. Theſe ſymptoms continued during the greater part of the night, but gradually abated towards morning, upon the breaking out of a gentle perſpiration which was encouraged by warm diluents; the next day, not the leaſt veſtige of the complaint remained.

The ſecond time this affection occurred, the appearances were nearly the ſame, except that they began a few hours later than in the firſt inſtance — The eruption alſo continued the greater part of the enſuing day, and then gradually declined. From eating the blanched Almond I feel no inconvenience, but have never ventured ſince to eat them in their unblanched ſtate.

During my reſidence in Edinburgh, a patient was received into the clinical ward affected nearly in the manner above deſcribed; I ſhall tranſcribe his caſe from the clinical reports taken at the time.

"Nov.

" Nov. 19, 1787. Alex. Robertſon, aged 18, " a Labourer; has a colourleſs puffy ſwelling over " his whole body, but more eſpecially over his " head, upper extremities and thighs. The " ſwelling is pretty diſtinctly ſeen and felt upon " the forehead, which pits upon preſſure ; the " palpebræ and upper lip are likewiſe a little " tumefied. The parts chiefly affected are fre- " quently attacked with almoſt intolerable itchi- " neſs, and when ſcratched have an appearance " as if ſtung with nettles—pulſe natural; appe- " tite good; body regular. Two or three days " previous to theſe complaints he was, at dif- " ferent times, ſuddenly attacked with great " vertigo, and on the 18th, firſt obſerved the " ſwelling and itchineſs—He attributes his com- " plaints to ſudden alternations of heat and cold. " Has uſed no Medicines.

" 20. He took a doſe of Pulv. e. Jalap. co. " which did not operate — on the 21ſt having " had only one natural ſtool, the purgative was " repeated. The ſwelling was nearly gone, " but the itching continued—

" 22. Had three motions from the phyſic:— " the itching had ceaſed on the head, and was eaſier " on the trunk of the body; but now began

" to affect the lower extremities—He was or-
" dered to employ the warm bath, and after-
" wards to take Pulv. Dover. gr. x with a dia-
" phoretic Julep occasionally.

" 23. He had sweated properly:—his voice
" and countenance were natural—the itching
" was gone from all parts but the legs and feet:
" the Julep was directed to be continued.

" 24. Some itching still remained about the
" legs and thighs; he was ordered to take next
" day a decoction of Tamarinds with Senna.

" 25. The itching was almost gone—

" On the 26th he left the house, cured."

Dr. Gregory, in his clinical lectures, mentioning this case, said he suspected it might have arisen from something disagreeable to the patient's stomach of the nature of the vegetable Bitter—The Doctor also observed that he had himself been subject to a similar complaint from eating Almonds; that he had a violent attack of fever, swelling of the body, and a copious eruption on the skin, attended with a loss of voice and coldness of the extremities, which, however, went off the next day — Nearly the same symptoms, he added, had occurred to him from eating a green cucumber with the skin upon it; and continued

four days, but were at length removed by a cathartic.

About two years before this period, Doctor Gregory had ſeen, he ſaid, a patient affected in a ſimilar way by drinking porter; he was ſeized with ſickneſs, ſlight fever, head ach, and great itching over his body, occaſioned probably by the bitter in the porter—The patient Robertſon, whoſe caſe is related above, alſo ſaid that he was taken ill ſoon after drinking ſome porter.

The above diſeaſe appears to me to belong to the genus *urticaria*. Authors have divided urticaria into an acute and a chronic ſpecies; the former has had various denominations, as *febris urticata, ſcarlatinâ urticatâ, purpura urticatâ, febris rubra pruriginoſa* — Some Writers, however, ſeem to have confined the term *urticaria* wholly to the chronic kind*—Theſe diſtinctions appear unneceſſary if we reflect how difficult it is to account for the effects of ſtimuli upon different conſtitutions; and how variouſly the diſeaſe may be modified, either by the peculiar irritability of the patient, or by a greater or leſs degree of activity in the irritating matter taken into the ſtomach.—Beſides, the term *febris urticata* is highly improper; for the ſymptoms which

* See Medical Tranſactions, vol. II.

occur

occur in the acute, or febrile ſtate, as it is called, are not thoſe of fever, but merely of erethiſmus, being the conſequences of a greater or leſs degree of irritation.

The *ſcarlatina, urticaria,* and *eſſera* have been conſidered, by ſome *, as diſeaſes of a ſimilar nature; but between ſcarlatina and the others, the difference is ſo ſtriking that it need not be minutely pointed out—The diſtinction between *urticaria* and *eſſera* does not appear ſo obvious—Some have conſidered *eſſera* only as a chronic ſtate of *urticaria,* but a much more eſſential diſtinction may be eſtabliſhed between the two diſeaſes—*Urticaria* ſeems always to be connected with an affection of the ſyſtem, and of the ſtomach and primæ viæ in particular, whereas the *eſſera* appears to be merely a local affection of the ſkin unconnected with any diſeaſe of the conſtitution.

Many perſons who have an irritable or delicate ſkin are liable, during the ſpring and ſummer ſeaſons, to frequent eruptions on the arms, face and neck, commonly called heat-ſpots, reſembling the ſtings of nettles, which obſerve no certain period of duration, but ſometimes

* See Selle Rudimenta Pyretologiæ.

quickly diſappear, and ſometimes are very permanent. A lady of my acquaintance is always affected with an eruption of this kind when her ſkin is touched with the common wall flower. The bites of inſects have conſiderable effect in producing a ſimilar eruption on the ſkins of ſome perſons, while others are little affected by them. Aſtruc ſays this *eſſera* is very common in Languedoc, but he conſiders it as the ſame with *urticaria*.

Thoſe who account for the effects of the vegetable bitter, upon the ſuppoſition of its being carried into the blood before it exerts its action on the extreme veſſels, afford little ſatisfaction to pathological inquirers. How can we, indeed, imagine that ſo ſmall a portion of matter as is probably extracted from the ſkins of a few almonds, ſhould, when mixed with the maſs of circulating fluids, produce ſuch powerful effects? It appears, therefore, more rational to conclude that the ſtomach is the part primarily affected; and that the eruption is only a conſequence of the cloſe connexion which ſubſiſts between this organ and the ſkin. That connexion is proved by a number of inſtances; I ſhall, however, adduce one more which is peculiar to the climate wherein I am at preſent

ſituated.

ſituated. This is the *prickly heat*, a papulous eruption which appears chiefly on parts covered by the clothes. Strangers are generally moſt liable to it, though ſome never have it, and yet enjoy good health. Fair people are more affected by it than thoſe of very dark complexions; yet I have ſometimes ſeen it affect even black people. This eruption is generally conſidered as a mark of health; from what I have ſeen of it, I am rather inclined to conſider it as indicating an active and healthy ſtate of the ſtomach. The ſlighteſt indiſpoſition or uneaſineſs of the ſtomach is commonly followed by a conſiderable abatement or total diſappearance of the eruption; in ſuch caſes, a doſe of bark, a glaſs of wine or any warm liquor, is frequently ſucceeded by a general tingling over the body, and a copious eruption of prickly heat; where the eruption is already out, it is often much increaſed and rendered more vivid by the ſame means.

It has often been ſuppoſed that bitters poſſeſs a narcotic quality; for which reaſon the gentian has been omitted in ſome of the foreign diſpenſatories. The long-continued uſe of bitters certainly tends to deſtroy the tone of the ſtomach and of the conſtitution; and thence produces

irregularities in the circulation, and more eſpecially congeſtions in the head. The fatal effects aſcribed to the Portland powder may be thus accounted for; at leaſt with more probability than by the common hypotheſis of a repulſion of gouty matter from the extremities, and its conſequent depoſition upon other parts, of which we have no proper evidence.

Free Town,
Sierra Leone,
June 3, 1793.

VII. *An Account of the Effects of Vitriolic Æther in a Caſe of ſpaſmodic Affection of the Stomach; and in two Caſes of Intermittent Fever. By Mr.* William Davidſon, *Apothecary in London.*

IN the month of November, 1791, a young married lady, of a delicate habit, having undergone much fatigue, was ſeized with a violent ſpaſm of the ſtomach, which came on immediately after dinner, every day, for eight days, and continued ſometimes for one, and ſometimes for two hours, without her finding any relief, although

although a variety of warm things were given to her for that purpoſe. On the 9th day ſhe dined at my houſe, and was taken as uſual. Having a high opinion of æther as an antiſpaſmodic, I gave her a draught compoſed of a drachm of vitriolic æther, and ſimple peppermint water, deſiring her to drink it quickly, which ſhe did.

The moment it got into the ſtomach it gave a conſiderable ſhock, (if I may ſo expreſs myſelf) to the whole conſtitution. She thought it very ſtrong, and ſaid I had nearly ſuffocated her; however, the pain went off immediately, and never returned after. *Quære*, was not this effect produced by the ſhock given to the common ſenſorium through the medium of the ſtomach, from which the diſtribution of nervous influence was diſturbed, and a ſtop thereby put to the diſeaſed action then exiſting?

Seeing ſuch ſucceſs from this medicine, and the commotion it excited in the body, I conceived it well adapted for anſwering one of the intentions expreſſed by the illuſtrious Whytt, in his Treatiſe on Nervous Diſeaſes; and I reſolved to put it in practice as ſoon as an opportunity ſhould offer, which happened ſoon after, as will appear by the following caſe of a quartan

intermittent, which was ſpeedily ſtopped by it. The paſſage alluded to in Dr. Whytt's work, being of great importance towards eſtabliſhing a rational pathology of ſome nervous diſeaſes, I ſhall beg leave to mention it. He ſays, page 221, (8vo edition) "And as an intermittent "agrees with epileptic and other convulſive "diſorders, as to its cauſe, ſo its returning paroxyſms, like theirs, may be often prevented "or weakened by raiſing, a ſhort time before "the approach of the fit, an acute pain or any "great commotion in the body." And the practice appears very rational with a view to diſturb or ſuſpend the nervous influence. The latter is to be moſt earneſtly wiſhed for in the treatment of theſe complaints: for, if ſuſpended only for a moment, there is great probability that the exiſting morbid action will either ceaſe or be changed into a milder affection. But if this cannot be accompliſhed, we often gain our purpoſe by diverting the nervous influence into a new channel.

Caſe

Caſe of a Quartan Intermittent cured by Æther.

Mrs. K—, aged about forty-ſix years, having loſt her only child on the 30th of Auguſt, 1791, was ſo much affected, that ſhe became very low and weak; and, towards the end of September, was ſeized with a ſevere quartan ague, which continued to return at regular periods, but for which ſhe uſed no remedy until the 15th of January, 1792, when ſhe applied to me. She was then in a feeble ſtate, but had no particular ſymptom of viſceral obſtruction.

Having firſt cleared the *primæ viæ* by an emetic and a purgative medicine, I began to treat her in the uſual way, by giving the bark and different tonics in the intervals of the fits, and endeavouring to ſhorten the paroxyſms, when preſent, by the common methods.

This plan of treatment I purſued until the 5th of February, without any benefit as to the periodical returns, although her general health was better. Being now tired and diſappointed, ſhe would take no more medicine; and in this reſolution ſhe perſiſted until the 16th, when ſhe

again ſolicited my aſſiſtance. She was now extremely weak and thin, and her ague had regularly continued.

Having been unſucceſsful in my former attempts, I reſolved to adopt Dr. Whytt's method of exciting a commotion in the ſyſtem juſt before the approach of the fit. With this view I ordered an æther draught, ſimilar to that given in the above caſe of ſpaſm, to be taken when the leaſt feeling of the fit ſhould come on. Some minutes, however, elapſed after the acceſſion of the cold fit before the draught was taken; which, notwithſtanding, produced the deſired effect. When taken into the ſtomach it gave her ſo conſiderable a ſhock, that ſhe imagined ſome miſtake had been made in preparing her medicines, and was therefore much frightened. The coldneſs went off immediately, and being ſucceeded by a pleaſant ſenſation of warmth, without any fever or perſpiration, ſhe was in good ſpirits all the reſt of the evening.

Fearing this one doſe might not be ſufficient, as the fit had commenced before the draught was taken, I requeſted ſhe would take another at the time the next paroxyſm was expected, whether it appeared or not. Accordingly, on the

the 20th, perceiving (to uſe her own expreſſion) her nails were becoming black, which ſhe had found to be the conſtant precurrent ſymptom of a fit, ſhe took her draught, which affected her ſtill more than the former.

At firſt ſhe ſeemed like to burſt, (as ſhe expreſſed herſelf) but ſoon after felt comfortable, and ſpent a very cheerful evening. Her ague diſappeared from this time, nor has ſhe had any return of it ſince. She took ſome tonic medicine twice a day for ſeveral days, and acquired freſh ſtrength and ſpirits daily.

In the above caſe it is probable that no particular viſceral obſtruction exiſted, and that the diſeaſe originated from weakneſs of the nervous ſyſtem, brought on by grief for the loſs of her child; and might therefore be conſidered as a nervous diſeaſe that had become periodical, and as ſuch was to be treated like epilepſy, and ſome others of that claſs; many of which might be ſucceſsfully attacked on the above principle. That many intermittents are nervous, would appear probable from the great number of patients who are daily cured by frights, charms, accidents, or, in ſhort, any thing which, for the moment, diverts or ſuſpends the nervous influence, and thus breaks the habit of attack.

In

In confirmation of this idea, I ſhall take the liberty to add a few more facts. A worthy baronet, whom I have the honour to attend, having been affected with an obſtinate ague for eighteen or twenty months, for which he had tried the bark, given in the beſt manner, without effect, was determined to follow the hounds on the approach of the next fit, in hopes that the exerciſe might prevent it from coming on.

He made the attempt, and certainly ſucceeded; for in leaping a five-barred gate, his horſe fell, by which accident he broke one of his collar bones, and his ague never appeared after. Here the violent ſhock to the conſtitution from the fall, and the ſymptomatic fever induced by the fracture, cured the intermittent; perhaps by ſtopping the habitual diſeaſed action, and inducing another action, where the nervous influence was determined more firmly and ſteadily to a particular point.

Many patients have been cured by falling accidentally into a river on the acceſſion of the cold fit. A large doſe of laudanum has alſo ſtopped a fit; and a ſimilar effect has been produced by a glaſs of brandy and hartſhorn. I know a very reſpectable private gentleman, who has cured many agues by the following draught, of his own compoſing; viz.

viz. brandy, ſtrong vinegar, and water, of each, a wine-glaſs full, to be taken juſt before the fit. Every practitioner is more or leſs acquainted with facts of this kind; and however mortifying it may be for profeſſional men to hear, yet it is alſo well known that an ague, which has for months baffled the united efforts of talents and experience, has been often cured by ſome charm, or by great emotion of mind, excited by the ſagacity of ſome good old lady on the approach of the fit. That the principle is rational, and conſiſtent with the laws of the animal œconomy, will appear probable from obſerving the rules of the nervous influence, which cannot be directed to two points, at one and the ſame time, with any degree of ſteadineſs or permanency.

Caſe of a Tertian Intermittent ſtopped by Æther.

Towards the end of February, 1793, a young man, about twenty-four years of age, of a delicate ſtructure, and fair complexion, became feveriſh, and was perſuaded by a medical friend to be blooded. Immediately after the operation was performed, he grew weak, hyſterical, and continued in a fainting ſtate, more or leſs, during the remaining part of

of the day. The next morning, about eight o'clock, an intermittent, of the tertian type, made its appearance, and went through the uſual ſtages. After proper attention had been paid to the ſtate of the firſt paſſages, the bark was given every two hours in the abſence of the fit. This plan, with the addition of a nouriſhing diet, and the occaſional uſe of port wine and porter, was continued for four days, but with no good effect; and the caſe of Mrs. K— having occurred to my remembrance, I now thought of trying the ſame means of cure in this caſe.

Accordingly, on the 8th of March, I ſent him the ſame æther draught, as had been given in the former caſes, to be taken on the approach of the next paroxyſm, which he expected the following morning. On the 9th he took his draught, exactly as the paroxyſm was beginning, and it went off directly by a gentle moiſture on the ſkin. Having proceeded with his bark for ſix days, gradually diminiſhing the frequency of exhibition, and having had no return of his ague, I left him ſeemingly in perfect health.

From the above caſes it appears evident, that ſome intermittents may be cured by exciting the

the commotion recommended by the celebrated author above mentioned. It remains, therefore, with practitioners to aſcertain what is the beſt medicine for anſwering this indication: Whether æther, electricity, a ſhock from the cold bath, or any particular impreſſion on the mind, is the beſt; or whether they ought not all to be adopted occaſionally, and only varied according to the different conſtitutions affected, and the different ſtates of each different patient; and alſo, whether all kinds of agues can be cured or relieved in this way. I exhibited the æther twice to a patient labouring under an intermittent, who was much affected with different internal complaints, and where the kidnies did not perform their functions, without ſtopping the diſeaſe, although the fit was much ſhortened by the ſecond doſe. From this I ſuſpect that the method above practiſed will not ſucceed when the diſeaſe is attended with viſceral obſtructions; but that when the ague ariſes from debility, occaſioned by grief, or whatever weakens the nervous ſyſtem, from which habitual fits have been induced, the habit of attack may be ſtopped, and the diſeaſe cured as already mentioned.

But I preſume the ſucceſs, even in the latter caſes,

caſes, will depend much upon the commotion being excited as near as poſſible to the moment of attack. I have lately ſucceeded in one caſe of epilepſy, which was of many years ſtanding, and had been induced by intenſe application of mind, by giving an æther draught on the approach of the fit, and purſuing a tonic plan in the intervals.

Queen Anne Street Eaſt,
October 10, 1793.

VIII. *An Account of the poiſonous Effects of the Seeds of the Datura Stramonium* Linn. *By Mr.* James Johnſon, *Surgeon at Lancaſter.*

ON the 12th of November, 1789, about five o'clock in the afternoon, Miſs S. of this town, aged twenty years, ſwallowed ſome of the ſeeds of the ſtramonium or thorn-apple. Three hours afterwards ſhe began to be ſick, and her mother gave her a mixture of flour of muſtard and water to make her vomit, and it produced this effect ſeveral times. At eleven o'clock the

ſame

ſame evening I viſited her, and immediately ſuſpected what ſhe had been eating from the deſcription her mother gave me of the plant, (the patient having deſtroyed all ſhe had of it); and the next day I was convinced of its being the datura ſtramonium, by a freſh ſpecimen of the plant, which was procured from the ſame place where the other had been gathered.

As ſhe had vomited ſeveral times before I was called to her, I contented myſelf with adminiſtering a purgative medicine, which procured ſeveral ſtools. She paſſed, however, a reſtleſs night, complained of great pain of her ſtomach and left arm, fancied ſhe ſaw objects that did not exiſt, and had repeatedly a ſenſation of a flaſhing light, which made her think that ſhe ſaw it lighten.

After the operation of the purgative, ſhe took repeatedly of an oily emulſion.

Nov. 14, As her ſickneſs, and pain of her ſtomach, ſtill continued, I gave her an emetic, of antim. tartar. and ipecacuanha, which brought off ſeveral of the ſeeds of the ſtramonium.

15. The ſickneſs and uneaſineſs at her ſtomach ſtill continuing, ſhe repeated the purgative medicine, and it operated ſeveral times.

16. She had paſſed a much better night, and was free both of ſickneſs and of the pain at her ſtomach.

17. As ſhe now had no complaint but weakneſs, ſhe was directed to take the Peruvian bark infuſed in port wine; and when I ſaw her again on the 20th, ſhe found herſelf quite recovered.

Of the inſtances of the poiſonous effects of ſtramonium, recorded by different writers, thoſe deſcribed by Dr. Ruſh *, Profeſſor Lobſtein †, and Dr. Fowler, ſeem to have the greateſt affinity to the caſe I have related.

The ſubject of Dr. Ruſh's account was a girl between three and four years old. She had fever, delirium, tremor of her limbs, and a general eruption on her ſkin. The real cauſe of theſe ſymptoms not being ſuſpected, purgative medicines, the warm bath, and cataplaſms to the feet were employed, but without effect. At length it was diſcovered that ſhe had ſwal-

* An Account of the Effects of the Stramonium or Thorn Apple. By Benjamin Ruſh, M. D. Profeſſor of Chemiſtry in the College of Philadelphia.—See Tranſactions of the American Philoſophical Society, Vol. I. p. 318.

† In an Appendix to a Diſſertation de Vegetabilibus Venenatis Alſatiæ, by F. A. Guerin. 4to. Straſburgh, 1766.

lowed

lowed ſome of the ſeeds of the ſtramonium. She was now vomited with emetic tartar, but brought up only phlegm. Sweet oil, however, mixed with a little caſtor oil, brought away a great number of the ſeeds by ſtool. The relief this oily medicine gave her, occaſioned it to be repeated every day for a week; but the tremor ſtill continued, at times, in her hands, and ſhe was blind and ſtupid. The pupils of her eyes were much dilated, and ſhe caught at the bed-clothes, and every thing around her, like a perſon in the laſt ſtage of a fever.

Being perſuaded that the oily mixture had evacuated all the ſeeds that were in the inteſtines, Dr. Ruſh ſuſpected that her complaints were kept up by a few ſeeds retained in the ſtomach. He therefore gave her a larger doſe of emetic tartar, which brought up eighty of the ſeeds; but the ſtupor and blindneſs ſtill continuing, the emetic was again repeated, and brought up above twenty more of the ſeeds; after which all her complaints vaniſhed.

Dr. Ruſh ſuppoſes, that in this caſe the effects of the poiſon would have been greater, if the ſeeds had been freſher; for they were, it ſeems, of the preceding year's growth, and were become dry and hard.

He adds, in a note, that Dr. Bond and Dr. Harris had informed him, that in a ſimilar caſe they had experienced good effects from lemon juice, after the ſtrongeſt vomits had failed to relieve the patient.

The caſe related by Dr. Lobſtein was as follows:

Two children at Straſburgh, a brother and a ſiſter, the former ſix, the latter nine years old, ate ſome ſeeds of the ſtramonium about five o'clock, P. M.

At nine the girl complained of laſſitude, and went to bed. Her mother ſoon after finding her feveriſh, and talking in her ſleep, concluded that ſhe was about to have ſome eruptive diſeaſe, and gave her ſomething warm to drink. She continued in this ſtate till one o'clock in the morning, when the boy alſo, who had ſlept in another room with his father, was become extremely reſtleſs. At ſeven, A. M. when Dr. Lobſtein firſt ſaw theſe children, they were both much convulſed; their faces and cheeks were ſwelled; their lips were of a deep red; their eye-lids ſwelled and cloſed: on ſeparating the eye-lids, the pupils of the eyes were found to be much dilated; the eyes themſelves were convulſed. Their bellies were tumid, but not

hard.

hard. When they were loudly ſpoken to, or when any body touched them, their convulſions became more frequent and violent. In each of them the tongue was ſwelled and protruded out of the mouth; and their fauces were ſo conſtricted that reſpiration was performed with difficulty. By degrees the ſpaſms became leſs violent, and their ſkin, from being intenſely hot, became moiſt; their pulſe was ſtill quick, but ſofter. They now rejected every kind of liquid, and ſeemed to labour under hydrophobia; for on offering a cupful of drink to them, Dr. Lobſtein found that the moment it touched their lips the ſpaſms returned with great violence.

While he was endeavouring to aſcertain the cauſe of theſe alarming ſymptoms, he accidentally obſerved, in the chamber, a portion of the plant which had occaſioned the miſchief. He now began, therefore, to excite vomiting; but no ſeeds of the ſtramonium were rejected. He was more ſucceſsful, however, with clyſters, which were repeatedly adminiſtered, to the number of twelve, and brought away ſeeds of the plant with the ſtools. The bellies of the patients now became leſs tumid; their reſpiration was eaſier; and the ſwelling of

their faces ſubſided. Lemon juice, and likewiſe vinegar and water, were now adminiſtered to them.

At eleven, A. M. when Dr. Lobſtein ſaw them a ſecond time, he found the girl more quiet, but ſtill at times convulſed. She drank freely of vinegar and water; her pulſe was ſofter; ſhe perſpired conſiderably; the tumefaction of her belly had ſubſided; and ſhe was free from delirium, but the pupils of her eyes were ſtill dilated. The boy remained unrelieved.

At eight, P. M. the girl was ſufficiently recovered to give her friends an account of the plant, the ſeeds of which ſhe and her brother had eaten. She had got ſome refreſhing ſleep, but her pupils were ſtill ſo dilated as not to contract on the approach of a candle.

The boy likewiſe now began to mend; and at eleven, P. M. opened his eyes and ſpoke to thoſe about him. The next day they were both of them pretty well recovered.

Of theſe caſes, from Dr. Lobſtein, I have been induced to be the more particular in my account, as the Diſſertation to which they are annexed is ſcarce; but, for the particulars of Dr.

Dr. Fowler's cases, I shall content myself with referring to the collection in which they are published, as being a work pretty generally in the hands of medical readers in this country*.

From none of the facts hitherto published, relative to the poisonous effects of this plant, does it seem to be ascertained what quantity of the seeds may be swallowed without destroying life. Their effects, no doubt, will vary according to the soil and climate in which the plant is produced, and according to the greater or less degree of maturity to which the capsules have arrived.

In one of the two cases related by Dr. Fowler, the patient, a girl not quite six years old, is said to have swallowed three-fourths of the seeds of a fresh, ripe, middle-sized thorn-apple; and I have reason to think that my patient swallowed nearly as many seeds as were contained in one apple; but it would seem that in the East Indies these seeds are much more deleterious; for there, according to Dr. An-

* See Edin. Med. Comment. Vol. V. page 161.—References to other instances of the poisonous effects of the seeds of the plant in question, may be found in the late Professor Murray's Apparatus Medicaminum, 8vo. Gotting. 1776. Tom. I. p. 456, and in Dr. Woodville's Medical Botany, Vol. II. p. 338.

derſon *, the ſeeds of one thorn-apple are generally ſuffi ient to induce immedi te death.

Both my caſe and Dr. Ruſh's ſhow the utility of repeated and active emetics in ſuch caſes, and how long the ſymptoms may be kept up by the retention of ſeeds in the ſtomach. In the caſe of my patient, as we have ſeen, ſeveral of the ſeeds were brought up on the ſecond day, by means of an antimonial emetic, notwithſtanding the patient had been ſo freely puked on the day ſhe ſwallowed the ſeeds; and in Dr. Ruſh's patient a ſimilar effect reſulted from a large doſe of emetic tartar, at the end of a week, notwithſtanding an emetic of leſs activity, given ſoon after the poiſon had been ſwallowed, brought up only phlegm. All the caſes I have ſpoken of tend to ſhow that our endeavours in ſimilar inſtances ſhould be directed to the ſpeedy evacuation of the ſeeds, by means of active and repeated emetics, and of purgative medicines and clyſters.

This plant, though not originally a native of Europe, is now but too common in every part of it. Our countryman Gerarde ſpeaks of it as being, in his time, a rare and ſtrange plant

* London Med. Journal, Vol. X. p. 285.

in

in England *; but it is now ſo frequent, that by later writers we find it deſcribed among our indigenous plants.

IX. *A Caſe of Hydrophobia. By Mr.* Richard Simmons, *Surgeon to the Britiſh Lying-in Hoſpital.*

ON Friday, Auguſt the 23d, 1793, about one o'clock in the afternoon, I was requeſted to ſee Mary Strong, a poor woman, at No. 11, Lewkner's Lane, aged forty-three years. The account ſhe gave me was, that ſhe had been unable to ſwallow any liquids during the laſt two days, as ſhe no ſooner put ſome to her mouth, than ſhe was ſeized with a kind of ſuffocation. She obſerved, however, that ſhe could ſwallow ſolids. She had, I was told, eaten an apple very well juſt before I ſaw her, and in my preſence ſhe ate ſome bread.

* See Johnſon's edition of Gerarde's Herball, Folio. London, 1633, p. 348.

She was coſtive; her pulſe was natural; but her thirſt was extremely diſtreſſing. I deſired ſhe would try to drink ſome water, and ſhe accordingly made the attempt; but no ſooner had ſhe brought the pot containing ſome near her lips, than ſhe threw her head back with great agitation, and could not get any into her mouth. I then aſked for a pan of water, which I put up to her face; this produced in her very great emotion. A woman, who was preſent, thought this agitation might ariſe from an idea that the water was going to be thrown at her; but the patient's manner being ſufficient to convince me there was no ground for ſuch a ſuppoſition, I aſked her to approach her face to it gently, when placed near her. This ſhe very readily tried to do, but the event was the ſame as when I held the pan.

From theſe circumſtances I had no doubt that ſhe laboured under hydrophobia; and upon farther inquiry, I learnt that ſhe had been bitten about two months before, by a dog, on the middle finger of her left hand. The wound being trifling, ſhe had thought no more of it; the dog, I was informed, had been killed by ſome people in the neighbourhood, on a ſuppoſition of its being mad.

I di-

I directed for her opium, in ſubſtance, to be occaſionally repeated; but the next day (the 24th) when Dr. Hemming accompanied me to her, we found that ſhe had refuſed to take any thing in the way of medicine, but that ſhe had taken often of ſome bread ſoaked in wine and water. She had paſſed but an indifferent night, and her pulſe was much quickened. Upon our requeſting her to endeavour to drink ſomething, ſhe told us ſhe would, if poſſible, do any thing we deſired of her; but that although her thirſt was ſtill exceſſive, it was not in her power to drink. We adviſed her to try to drink ſomething out of a tea pot, but the attempt threw her into great diſtreſs. After we had been with her a little while, however, ſhe ſwallowed a tea ſpoonful of wine and water in a haſty confuſed manner. This induced us to perſuade her to try to take a larger draught; ſhe took ſome in a tea cup in her hand, and threw it into her mouth haſtily, and with great difficulty ſwallowed a very little of it; but immediately after threw herſelf back in the bed in a convulſive kind of manner.

We now left her, and adviſed that ſhe ſhould have a clyſter injected immediately; and that an ounce of ung. hydrarg. fort. ſhould be rubbed

bed in on her thighs during the day; ſhe was likewiſe adviſed to make trial of the opiate.

I ſaw her again about half paſt twelve o'clock on the 25th. She had had no ſleep, talked in an incoherent manner, hiccoughed, and ſpate frequently a viſcid ſaliva, and foamed at the mouth; her pulſe was now not perceptible; the clyſter had produced one copious ſtool; ſhe had been unable to take any of the opiate, and had refuſed to have more than two drachms of the ointment rubbed in. Her countenance was wild; her ſpeech altered; and every appearance indicated a ſpeedy diſſolution, which accordingly took place that afternoon, about three o'clock, two hours after I left her. From the people who were about her, I afterwards learnt that ſhe died very quietly, and that juſt before her death ſhe vomited about a pint of ſomething, as they deſcribed it, like coagulated blood.

Leave could not be obtained to open the body.

There is ſo little to be deduced from this caſe, that ſome apology might be neceſſary for offering it to the public, if the diſeaſe of which it

it is an inſtance, were leſs rare or better underſtood; but in the preſent imperfect ſtate of our knowledge with reſpect to the pathology and treatment of hydrophobia, every well-authenticated inſtance of it ſeems to deſerve to be recorded. Some valuable obſervations reſpecting this diſeaſe, by Dr. John Hunter, drawn up from caſes and materials collected by a Society for the improvement of medical and chirurgical knowledge, have been lately publiſhed in their Tranſactions; and a ſimilar arrangement of facts, made from time to time, may perhaps, by degrees, lead us to a more ſucceſsful mode of treating a diſeaſe which has hitherto baffled every attempt to relieve it.

The little deviation from the natural ſtate of the pulſe, which occurred during the firſt two days in my patient, has been obſerved in other inſtances at the beginning of the diſeaſe.

In this caſe, notwithſtanding her inability to ſwallow any thing liquid, the patient, as we have ſeen, complained of very diſtreſſing thirſt; a ſymptom which I do not find mentioned in the deſcriptions I have met with of other inſtances of the diſeaſe.

Newman Street,
November 23, 1793.

X. *An*

X. *An Account of a Child born without Organs of Generation.* *By Mr.* Edward Ford, *F. A. S. Surgeon to the Weſtminſter General Diſpenſary.*

IN December, 1792, I was deſired to ſee a child, born a few days before, with the anus imperforate in its uſual place, the fæces appearing to be diſcharged through the vagina. The external parts were remarkably ſmall in their conformation; the orifice of the meatus urinarius admitted a probe into the bladder; but on attempting to paſs a director, and afterwards a ſmall probe into the paſſage from which the fæces were diſcharged, I found it impracticable from the ſmallneſs of the aperture; and at the ſame time I diſcovered that there was no cavity ſimilar to the uſual one of the vagina.

It was propoſed a few days afterwards to form an artificial opening for the diſcharge of the fæces in the uſual ſituation of the anus, by introducing a probe into the preternatural opening, and puſhing it backwards, ſo as to project

it

it below the os coccygis, and then to cut upon the inſtrument, in order to form, if poſſible, an outlet for the fæces, leſs liable to the inconveniences which muſt inevitably have reſulted from the unfortunate derangement of parts which at preſent ſubſiſted. A time was fixed for the operation, but the infant ſoon after becoming diſordered in its health, it was judged unneceſſary to attempt it.

The child died when it was three weeks old, and I had an opportunity of examining it after death, in the preſence of Dr. Jackſon, of Hanover Street, and Mr. Hunt, apothecary, of Swallow Street.

The firſt conſideration which preſented itſelf to my mind, was to perform ſuch an operation, on the dead body, as would have been thought requiſite to be done if the child had lived. In doing this, it was ſtill found impoſſible to paſs an inſtrument into the rectum from the external parts, till they were dilated downwards, in order to diſcover the orifice through which the fæces were diſcharged. This dilatation being effected, the aperture became viſible; and on preſſing the abdomen with my hand, the fæces were copiouſly diſcharged.

I then

I then introduced a director into the rectum, and projecting it backwards, eaſily cut upon it, and, without much difficulty, formed an external communication with the gut in the part where the anus is uſually formed. Had the child ſurvived to have had this operation performed, it may be queſtionable, whether it would have fully anſwered the purpoſe of relieving the great inconvenience it laboured under. It might have been difficult to have procured the entire paſſage of the fæces through this artificial opening; and even had ſuch an attempt ſucceeded, the want of a ſphincter ani would have been a misfortune not likely to be ſupplied by art. Still, however, the diſagreeable circumſtance of living under ſo great a calamity as this child was born with, was ſufficiently obvious to juſtify every attempt towards its relief.

On opening the cavity of the abdomen, and tracing the inteſtinal canal from the ſtomach, every part was found to be in a healthy ſtate, and nothing preternatural occurred, till we came to the rectum, which was found to terminate cloſe to the bladder, in the aperture before mentioned, juſt below the urinary paſſage.

The

d
Fig. 1.
c
a
b
f
Fig. II.
e
Lowenhill Sculp.

The liver, gall bladder, ſpleen, and pancreas, were in a healthy and natural ſtate.

On removing the inteſtines, an unuſual prominence was obſerved on the left ſide, which proved to be the left kidney much enlarged; with its ureter dilated through its whole length (but principally at its origin) and terminating nearer to the neck of the bladder than uſual. The oppoſite kidney, on the right ſide, formed a ſtriking contraſt to the left; it was very ſmall and flat, and reſembled, in ſize and figure, a common bean; its ureter was about an inch in length, and had no connexion with the bladder.

The renal glands were wanting.

With regard to the contents of the pelvis, the bladder and rectum were as above deſcribed, contiguous to each other; and the termination of the rectum was cloſe to that of the urethra*: but

* In Fig. I. of the annexed engraving, (ſee Plate I.) the external parts are a little dilated, in order to ſhow the preternatural termination of the rectum a little below the meatus urinarius; *a* refers to a probe paſſed into the meatus urinarius; *b* to a probe paſſed into the anus; *c* to the fundus of the bladder; *d* to the rectum; *e* to the left kidney

but upon the moſt accurate inſpection, both by Dr. Jackſon and ſeveral other gentlemen who have ſince viewed the preparation, it is evident that this child, which can ſcarcely be called a female, was born without either ovaria, uterus, or vagina.

XI. *Caſe of Apoplexy in a pregnant Woman; with Obſervations. By Mr.* Philip Williams, *Surgeon at Rugby in Warwickſhire. Communicated in a Letter to* John Clarke, M. D. *Teacher of Midwifery in London; and by him to Dr.* Simmons.

THE following caſe, which I offer to you, appears to me to deſerve attention, not only from the remarkable ſituation of the children, but alſo from the circumſtances attending

kidney much enlarged; and *f* to the termination of the left ureter.

Fig. II. ſhows the right kidney, uncommonly ſmall.

the

the death of the patient. I ſhall firſt take notice of the latter, and then proceed to make ſome few remarks on the former.

A woman, about forty years of age, who was the mother of ſeveral children, had advanced to the laſt month of her pregnancy without any thing remarkable having occurred. One day, when ſhe was in apparent good health, and going about her uſual occupations, upon a ſlight exertion ſhe ſuddenly complained of a violent pain in her head, and had ſcarcely time to reach a chair, into which ſhe ſunk, and never ſtirred nor ſpoke afterwards.

On my coming to her, and finding her quite dead, I introduced my finger into the vagina, and found the os uteri dilated to the ſize of a crown piece, but was prevented, by the huſband's coming, (who would not ſuffer any thing to be done) from aſcertaining what part preſented.

Dr. Baillie and Mr. Cruikſhank afterwards examined, with me, the body at their diſſecting room. On opening the head coagulated blood was found in all the ventricles, and ſome had penetrated the very ſubſtance of the right optic nerve.

From the quantity of blood, (for there was

between two and three ounces) and from the ſituation in which it was found, we need not wonder at the ſudden death of the patient. But it deſerves attention to enquire how far we ſhall be able to trace the cauſe of the extravaſation. The woman was by no means of a plethoric habit; neither was ſhe, at the time of her ſeizure, uſing any violent exertion.

Might not a diſpoſition to labour having come on, from the connexion known to exiſt between the brain and the uterus, produce a greater determination of blood to the brain than its veſſels were capable of bearing, and hence occaſion the rupture? That there had been an affection of the uterus, appears very probable from the ſtate in which the os uteri was found.

The preſentation has, I believe, never been before delineated. Both children, as will be ſeen by the plate *, preſent preternaturally; one with the breech, the other with the foot.

It may become a queſtion whether any difficulty would have occurred in the delivery? And alſo which of theſe children would have been born firſt had labour come on? It is moſt pro-

* See Plate II. in which the letters *a*, *a*, refer to the parietes of the abdomen, and *b* to the fundus uteri with the placenta adhering.

Ravenhill fecit

bable that the woman would have been delivered without any thing unuſual occurring or having been known of the ſituation in which the children had lain in the womb. Had the labour been ſuffered to proceed of its own accord, I think that the one whoſe breech now preſents would have been born firſt. For though the child, whoſe foot preſents, (and which is under the breech of the other) has its head neareſt to the fundus of the uterus, and conſequently when the uterus came into action, the longitudinal fibres would have acted moſt completely upon it; yet from the circular form in which it lies, its head, inſtead of acting upon its own body, would probably have acted upon the head of the other child whoſe breech preſents, and forcing it down, might either itſelf have gradually gone round, and, before the firſt child had been born, making a complete evolution, have been born head firſt; or it might have remained with its head where it now is, and after the birth of the other child have come with its feet firſt.

One of the above circumſtances, I think, would have happened had Nature been left to herſelf; but had the woman been attended in labour

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by one who was impatient of delay, it is moſt probable that when the foot was found preſenting, that child would have been brought firſt, in which caſe I do not think that any difficulty would have occurred in the delivery of the other.

Query. Might not the labour mentioned in the thirty-eighth chapter of Geneſis, v. 28, 29, and 30, have been ſimilar to the caſe which I have related; and that though the hand of one of the children was loweſt at the beginning of labour, yet as the moſt bulky part of the other child was below the body of this child, the hand receded, and the other child came firſt into the world?

XII. *Deſcription of Kilburn Wells, and Analyſis of their Water. By Mr.* Joh. Godfr. Schmeiſſer. Vide *Philoſophical Tranſactions of the Royal Society of London, for the Year* 1792. *Part* I. 4to. London, 1792.

THESE wells lie in a meadow, to the right of the Edgeware road, about two miles from London.

The author obſerves that they ſpring about twelve feet below the ſurface; that the water is not

not perfectly bright, but of rather a milky hue; that it has a mild and bitterish taste, with little or no briskness, as containing a very small proportion of fixed air; that on dipping for it, or otherwise agitating it, a sulphureous smell is perceived near the surface, which, however, soon goes off in a temperature of 80° of Fahrenheit's thermometer; and that the changes in the atmosphere do not appear to affect either the quantity or quality of the water.

Mr. Schmeisser found the specific gravity of the Kilburn water to be to distilled water as 1,0071 : 1,0000; and its general temperature 53°, which was not affected by a change of ten degrees in the temperature of the atmosphere.

While the water continued at rest, no ebullition of fixed air, we are told, was perceived, and scarce any sulphureous smell.

That this mineral water so easily parts with the hepatic air (perceivable on agitating it) if it be shaken in a warmer temperature, or transported from one place to another, is, our author thinks, probably owing to the fixed air which it contains; for as this aërial acid has a great affinity to phlogiston, so, he observes, it may hence be inferred, that fixed and hepatic air cannot exist together in a mineral water, but

that the latter will be deſtroyed, as the fixed air is developed by gentle warmth.

For the detail of Mr. Schmeiſſer's ingenious experiments on this water, we muſt refer the chemical reader to the work itſelf, as they cannot well be abridged. They conſiſt of experiments with reagent ſubſtances; of experiments to aſcertain the properties and proportion of the elaſtic fluids contained in the water; and, laſtly, of experiments to aſcertain the fixed conſtituent parts of the water, and their properties.

The reſults of this ſeemingly very accurate analyſis are included in the following ſummary of the conſtituent parts of the Kilburn water, in 24 pounds.

Fixed air - -	84 cubic inches	
Hepatic air - near	36	
Vitriolated magneſia -	910 grains, equal to ℥ij ʒiiss, Apothecary's weight.	
Vitriolated natron -	282 gr. =	ʒv. lij grains
Muriated natron -	60 gr. =	75 gr.
Sclenite - -	130 gr. =	ʒij xlij gr.
Muriated magneſia -	128 gr. =	ʒij xl gr.
——— calcareous earth	6 gr. =	7½ gr.
Aerated magneſia -	12½ gr. =	15 gr.
——— calcareous earth	24 gr. =	30 gr.
Calx of iron -	3⅓ gr. =	4 gr.
Reſinous matter -	6 gr. =	7½ gr.
Sum	1561⅝ grains, equal to medicinal weight, 4 ounces, 0 drams, and 32 grains	

XIII. *An*

XIII. *An Account of the remarkable Effects of a Shipwreck on the Mariners; with Experiments and Obſervations on the Influence of Immerſion in freſh and ſalt Water, hot and cold, on the Powers of the living Body.* *By* James Currie, *of Liverpool, M. D. Fellow of the Royal College of Phyſicians at Edinburgh.* Vide *Philoſophical Tranſactions of the Royal Society of London, for the Year* 1792. *Part* II. 4to. London, 1792.

THE circumſtances of the ſhipwreck, which ſuggeſted the ingenious experiments deſcribed in this paper, were as follows:

On the 13th of December, 1790, an American ſhip was caſt away on a ſand-bank that lies in the opening of the river Merſey into the Iriſh Channel. The crew got on a part of the wreck, where they paſſed the night; and a ſignal which they made being diſcovered next day from Hillberry iſland, a boat went off, and took up the ſurvivors. The unfortunate men had remained twenty-three hours on the wreck; and of fourteen, the original number,

eleven were ſtill alive, all of whom in the end recovered. Of the three that periſhed, one was the maſter of the veſſel; another was a paſſenger who had been a maſter, but had loſt or ſold his ſhip in America; the third was the cook.

The cook, who was a weakly man, died a few hours before the boat reached the wreck; but the two maſters had been long dead.

Both the maſters, we are told, were ſtrong and healthy men, and one of them a native of Scotland, in the flower of life, early inured to cold and hardſhips, and very vigorous both in body and mind. On the other hand, ſeveral of the ſurvivors, it is obſerved, were by no means ſtrong men; and moſt of them had been long accuſtomed to Carolina and other warm climates; the perſon among the whole who ſeemed to have ſuffered leaſt was a negro.

The death of the two maſters was ſaid to have been owing to their having taken poſſeſſion of a keg which had contained cherry-brandy, and which ſtill contained the cherries; theſe, it was reported, they had kept to themſelves, and eaten in large quantities after the ſhipwreck; and this, having produced intoxication, was ſuppoſed to have haſtened their death.

death. Some experienced ſeamen were ſatisfied with this account, which indeed ſeemed very rational; for though ſpirituous liquors may fortify the body againſt the effects of heat combined with moiſture, and may perhaps ſupport it for a ſhort time under great fatigue, they would ſeem, as our author very properly obſerves, to be uniformly hurtful when taken under ſevere and continued cold. Pleaſed to ſee a doctrine becoming popular which has been ſo ably ſupported by Dr. Aikin *, and others, he was induced to think it might receive a ſtriking confirmation from this cataſtrophe, into the particulars of which he determined to examine accurately. He therefore obtained acceſs to the ſurvivors of the crew, and from them, but more eſpecially from Mr. Amyat, the mate, an intelligent young man, he received the information which he required.

From repeated converſations with this perſon, Dr. Currie learnt that Captain Scott, the maſter of the veſſel, died in about four hours after the ſhip ſtruck; and that Captain Daviſon, the paſſenger, died in about ſeven: but that

* See Tranſactions of the Philoſophical and Literary Society of Mancheſter, Vol. I.

the

the incident of their having eaten the cherries was entirely without foundation: of this Mr. Amyat was certain, for he ſaw the keg which contained them ſtaved, and the cherries, falling on the wreck, were immediately waſhed into the ſea. Mr. Amyat, we are told, expreſſed his ſurpriſe at the early death of the two maſters, but could not aſſign any cauſe for it. He ſaid there was no liquor of any kind ſaved, nor any ſort of food; that the whole crew were on an equality in all points, except that ſome were deeper in the water than others, but that the two maſters had the advantage in this reſpect, for they ſat on the only part of the wreck that was out of the ſea, whereas the negro, who eſcaped almoſt unhurt, was perhaps deepeſt in the ſea of any. Mr. Amyat, it ſeems, explained this in the following manner: when the ſhip ſtruck they cut away her maſts to prevent her from overſetting, and after this ſhe drifted over the ſand-bank, into what he called a "ſwaſh" on the other ſide. Here ſhe floated, and they let go their beſt bower anchor, but it dragged, and the veſſel ſtruck again in a few minutes on another bank. In this ſituation ſhe lay ſome time, beating againſt the ſand, and the ſea breaking over her. In a little while Mr. Amyat ſaw the tar barrels, which

which formed her cargo, floating towards the land, and ſoon after the bottom parted entirely, and was carried in the ſame direction. Happily for the men, the part of the wreck on which they were laſhed was held by the anchor, and floated in the water, a ſmall portion of the after part of the quarter deck being above the ſurface. On this ſat the two maſters, generally out of the ſea, but frequently overwhelmed by the ſurge, and at other times expoſed to heavy ſhowers of ſleet and ſnow, and to a high and piercing wind. The temperature of the air, Dr. Currie obſerves, as nearly as could be gueſſed, was from 30° to 33° of Fahrenheit, and that of the ſea, from trials in ſimilar circumſtances, from 38° to 40°. Immediately before the two maſters was Mr. Amyat himſelf. As he was ſitting, and the deck ſloped pretty rapidly, he was generally, we are told, up to the middle in the water; and ſome of the others were up to the ſhoulders. They were not, it is obſerved, at any time able to change their poſition, but kept their legs in pretty conſtant motion to counteract the cold, their arms being employed in holding by the wreck.

The maſter of the ſhip, Captain Scott, a native of North Carolina, and about forty years of

of age, died firſt. As they were in the dark, Mr. Amyat could not ſee his countenance; but he was firſt alarmed by hearing him talk incoherently, like one in the delirium of fever. By degrees his voice dwindled into a mutter, and his hearing ſeemed to fail. At length he raiſed himſelf up in a ſort of convulſive motion, in which he continued a few ſeconds, and then fell back dead on the deck. This happened about eight in the evening; four hours after the ſhip went aground. Soon after this, Captain Daviſon, who was about twenty-eight, began to talk incoherently, in the ſame manner as the other. He ſtruggled longer, but died in the ſame way, at about eleven at night. The cook died in the forenoon of the ſucceeding day. He was a low-ſpirited man, we are told, and deſponded from the beginning. All the reſt held out, as has been already mentioned, till they were taken up about three in the afternoon. Mr. Amyat ſaid that his hands and feet were ſwelled and numb, though not abſolutely ſenſeleſs; he felt a tightneſs at the pit of his ſtomach, and his mouth and lips were parched; but what diſtreſſed him moſt was cramps in the muſcles of his ſides and hips, which were drawn into knots. Though immerſed in the ſea, they

were

were all of them, it ſeems, very thirſty; and though expoſed to ſuch ſevere cold, Mr. Amyat himſelf was not drowſy, nor were any of the men drowſy, nor did ſleep precede death in thoſe that periſhed.

Dr. Currie reflecting on theſe curious facts, had no doubt that the death of the two maſters was to be imputed to their peculiar poſition on the wreck. Expoſed to heavy ſhowers of ſleet and ſnow, they might, he thought, ſuffer from being wet with freſh rather than ſalt water; or from being expoſed to the cold of the atmoſphere, probably ſeven or eight degrees greater than that of the ſea. The chilling effects of evaporation, he conceived, might operate againſt them, promoted as theſe muſt have been by the high wind; or they might receive injury from their frequent immerſions in the ſea, producing an *alternation* in the media ſurrounding. This laſt ſuppoſition, however, did not, he confeſſes, ſtrike him at the time; but the others, he obſerves, dwelt on his mind.

Of the powers attending animation, Dr. Currie remarks, that which ſeems fundamental, is the capacity of the living body of preſerving the ſame heat in various degrees of temperature of the ſame medium, and, indeed, in media

of

of very different denſity and preſſure. If a definition of life were required, it is, he thinks, on this faculty that it might beſt be founded. It is known, he obſerves, that ſome fluids, applied to the ſkin, vary in their effects according to their impregnation; that in the ſame degree of temperature, for inſtance, pure water on the ſurface of the body is much more hurtful than water in which ſalt is diſſolved. Seafaring men, he remarks, are univerſally acquainted with this, and for a ſtriking proof of the truth, as well as of the importance of the obſervation, he refers us to the Narrative of Lieut. Bligh. Our author thought it probable that the ſaline impregnation might ſtimulate the veſſels of the ſkin, ſo as to counteract the ſedative or debilitating action of the cold. At any rate, it ſeemed to him not unlikely that ſome light might be thrown on this curious ſubject, by obſerving the effects of immerſion in freſh and ſalt water, of equal temperature, on the animal heat; and this, he conceived, might alſo aſſiſt in accounting for the death of the unfortunate men already mentioned. He therefore made the following experiments.

Experiment I.

A large veſſel, containing one hundred and ſeventy gallons of ſalt water *, was placed in the open air. The atmoſphere was damp and raw. The thermometer, both in the air and in the water, ſtood at 44°. The ſubject of the experiment was Richard Edwards, a healthy man, twenty-eight years of age, with black hair, and a ruddy complexion. The hour choſen for his immerſion was four in the afternoon, about two hours after his dinner; a time, Dr. Currie tells us, appointed rather for his own convenience, than as being moſt proper for the purpoſe.

The heat of the perſon who was the ſubject of the experiment was 98° before undreſſing; his pulſe 100 in the minute. He was undreſſed in a room where the mercury was at 56°; and afterwards ſtood naked before the fire till his

* In a ſubſequent part of his paper the author obſerves that the ſalt water, employed in this and the following experiments, contained ſalt in the proportion of one to twenty four.

heat

heat and pulſe were examined again, and found as before. He then walked pretty briſkly through a flagged paſſage into an open court, where the north-eaſt wind blew ſharply upon him: he was expoſed to it for a minute, and then plunged ſuddenly into the water up to the ſhoulders. The thermometer, which had been kept in a jug of warm water, at the heat of 100°, was introduced into his mouth, with the bulb under his tongue, as ſoon as the convulſive ſobbings occaſioned by the ſhock were over. The mercury fell rapidly, and a minute and a half after immerſion it ſtood at 87°. He remained motionleſs in the water, and the mercury roſe gradually; at the end of twelve minutes it ſtood at 93°½. While he ſat in the water, it occurred to the author to examine his heat when he roſe out of it into the air. He had reflected, he tells us, on the power that muſt be employed to keep up his heat in a medium ſo denſe as water, and where an inanimate body, of the ſame bulk, would have cooled ſo much more ſpeedily than in air of the ſame temperature. Suppoſing that this heat producing proceſs, whatever it may be, might continue its operations ſome time after the extraordinary ſtimulus (the preſſure of the water) was removed,

moved, he expected to see the mercury rise by the accumulation of his heat, on changing the medium of water for air, and therefore he kept him exposed, naked, to the wind, two minutes after taking him out of the bath. To his surprise, although the attendants were rubbing him dry with towels during this time, the mercury fell rapidly. He was put into a warm bed, and his heat, when examined under the tongue, was 87°, at the axilla 89°. Frictions were used, and brandy mixed with water administered; but Dr. Currie found that the best mode of counteracting the cold, was to apply a bladder, with hot water, to the pit of the stomach, a fact which seems important; this being done, his shiverings, which before were severe, soon ceased, and he became more comfortable. Three hours afterwards, however, he had not entirely recovered his former heat; but by eight at night, he was in all respects as usual.

The author observes that he has been very minute in detailing the circumstances under which this experiment was made; because some of the particulars which, at the time, he thought of little consequence, he found afterwards of

importance. The experiment itſelf he determined to repeat as exactly as poſſible.

Experiment II.

On the next day, at the ſame hour, the ſame perſon was again immerſed as before. His pulſe previouſly was 85, his heat 100°. He had been put to bed an hour before, to ſave the time ſpent in undreſſing. The heat of the water and of the atmoſphere was 44°. The wind was north-eaſt, and ſtrong. On this occaſion, as before, there was a rapid fall of the mercury; the following table ſhows the progreſs of the return of his heat:

	Ther.		Ther.
2 min. after immerſion	89° ½	9 min. after immerſion	95° ¾
3 —— - -	90 ½	10 min. - -	94 ½
4 —— - -	92 ½	11 —— - -	95
5 —— - -	94 ½	12 —— - -	95
6 —— - -	95	13 —— - -	95 ½
7 —— - -	95 ¾	14 and 15 min. -	95
8 —— - -	95 ¾		

At the end of fifteen minutes he was taken out, and ſtood three minutes, naked, expoſed to the north-eaſt wind, at the end of which time the mercury had ſunk to 88°. A draught of

of ale was given him, and he was put into a warm bed; in three minutes after the mercury rose to 93°. An hour after his heat was 95°.

The effects produced by this alternate exposure to water and air of the same temperature, gave a new direction to our author's ideas, and determined him to inquire again into this singular phenomenon. The most obvious method, he observes, would have been to have prolonged the process of alternation, and replunged the person cooled by the external air into the bath; but this, he adds, was running too great a risk, unless some more sudden and certain method could be found of restoring the heat that might be lost. He deemed it prudent, therefore, to proceed more cautiously. In the next experiment he resolved to try the methods of heating as well as cooling the body.

Experiment III.

On the following day, at the same hour, the same person was again immersed in the salt-water bath. His heat previously was 98°, his pulse 100; the temperature of the water and of

the atmosphere, as before, 44°. The mercury sunk rapidly to 90°.

2 minutes after the thermometer was at -	88°
3 min. - -	88
4 —— - -	88 ½
5 —— - -	90 ½
6 —— - -	92
7 —— - -	92
8 —— - -	94
9 —— - -	94
10 min. after the thermometer was at -	94° ½
11 min. - -	94 ¾
12 —— - -	95
13 —— - -	96
14 —— - -	96
15 —— - -	96
16 —— - -	96

He was now taken out, and stood in the wind three minutes, shivering violently. This circumstance, we are told, rendered it difficult to ascertain exactly the fall of the mercury, which was, however, it seems, considerable. When examined in the room in which he undressed, it stood at 90°. He was now plunged into a fresh-water warm bath, heated to 97° ½, and yet the mercury fell two degrees.

1 min. after immersion, in the warm bath, the mercury was at -	88°
2 min. - .	92
3 —— - -	92
4 —— - -	94
5 min. after -	94°
6 —— - -	96
7 —— - -	96
8 —— - -	96
9, 10, 11, 12, to 16,	96

Dr. Currie observes, that if the rise of heat in the cold bath at 44°, and in the warm bath at 97° ½, be compared, the first will be found more

more ſlow; but that after being ſixteen minutes in the one and in the other, the heat was the ſame in both caſes, when taken at the mouth. It muſt, however, he adds, be acknowledged, that in the cold bath the extremities were chilled and cold, while in the hot bath the heat was equally diffuſed.

When the man got out of the hot bath, he put on his clothes, and was remarkably alert and cheerful the whole evening. Encouraged by the ſafety of theſe experiments, our author reſolved to increaſe the time of immerſion in the cold bath, and to inquire more generally into its effects on the ſenſations, as well as heat.

Experiment IV.

At the ſame hour of another day, the ſame perſon was again immerſed as before, his heat previouſly being $97^{\circ}\frac{1}{2}$, and that of the water 42°; the wind was north-eaſt, and briſk.

1 minute after,	heat	90°	
2 minutes	- -	92	
3 ———	- -	92	
4 ———	- -	92 $\frac{1}{4}$	
5 ———	- -	92	
6 ———	- -	92 $\frac{1}{2}$	
7 ———	- -	94	
8, 9, 10, 11	-	94	
12 minutes	- -		
13 ———	- -		
14 ———	- -	94° $\frac{1}{2}$	
15 to 24	- -	94 $\frac{1}{2}$	
25 ———	- -	94	
26, 27	- -		
28 ———	- -	94 $\frac{1}{2}$	
29, 30	- -	94	

It will be obſerved, that in the above table there are blanks left in the report. At ſuch times the thermometer, we are told, was taken out of Edwards's mouth, to admit of his anſwering the queſtions put to him. He ſaid, that on plunging into the water he felt an extreme cold, which he could not but think was partly owing to his being expoſed, naked, to the wind before; that this cold diminiſhed, and in a little while he felt comfortable, but that after a while the ſenſe of coldneſs returned, though leſs than at firſt; diminiſhing again, but in a leſs degree. At length his ſenſations became pretty fixed. In this ſtate, when the water was at reſt, he ſhould not even have known, by his feelings from the upper part of his cheſt to the pubes, that he was in water at all. His feet and legs were very cold: ſo were his hands and arms; and ſo alſo the penis and ſcrotum. He mentioned, likewiſe, that he felt a cold circle round the upper part of his body, though not conſtantly. On examining into this, Dr. Currie found it was greateſt at firſt, and that it extended over the ſpace which, from the undulations left in the bath by the plunge of immerſion, was alternately above and under the ſurface of the water: when the bath ſettled, it was little

tle felt; but by agitating the fluid, he could reproduce it, at any time when the cold in the extremities was not so great as to prevent its being felt. This curious particular serves, our author thinks, to explain a circumstance much dwelt on by Mr. Amyat, in giving an account of his sufferings on the wreck; that what he felt most severely was the cramps in the muscles of his hips and sides, parts which, from his situation on the wreck, must have been alternately under and above the surge. From Mr. Amyat's account, it appeared that the sea did not break over the sufferers all the time they were on the wreck. The wind moderated, as well as the waves, and for the last fifteen hours they were not at any time overwhelmed, or at least Mr. Amyat himself was not. The cold never abated. Being all lashed to the wreck, they never changed their positions: the bodies of those who died occupied the space where they were originally placed. Mr. Amyat, therefore, during the whole time sat nearly up to the middle in water, but subject to the variations occasioned by the motion of the sea.

To return to the subject of the experiment. When he was exposed, naked, to the wind, the mercury sunk as usual five or six degrees,

and his ſhiverings were great. With a view to reſtore his heat as ſpeedily as poſſible, the bath was heated to 104°: but after being half a minute in it, he ſcreamed out with pain, eſpecially in his extremities, and about his ſcrotum. When taken out, his ſhiverings we are told, almoſt amounted to convulſion. The bath was lowered to 88°, and he was replaced in it, and its temperature progreſſively, but pretty rapidly, increaſed to 100°. He continued, however, to ſhiver much, his heat remaining about 90°; but a bladder, with very hot water, being introduced under the ſurface of the bath, and applied cloſe to the ſtomach, the good effects, it is remarked, were inſtantaneous, his ſhiverings ceaſed, and his heat mounted rapidly to 98°.

All theſe experiments having been made on one perſon, Dr. Currie determined to repeat this laſt on another.

Experiment V.

Rich. Sutton, aged 19, of a pale complexion, and a feebler frame, was immerſed in the bath, under

under the circumſtances of the preceding experiment. His heat was previouſly 96° ½.

½ a minute after,			heat 91°	18 minutes	-	-	93° ¼
1 minute	-	-	90	19 ———	-	-	93 ½
2 ———	-	-	88 ½	20, 21	-	-	94
3 ———	-	-	89	22 ———	-	-	92 ½
4 ———	-	-	90	23 ———	-	-	92 ¼
5 ———	-	-	92	24 ———	-	-	92 ¼
6 ———	-	-	92 ¼	25 ———	-	-	94
7 to 10	-	-	92	26 ———	-	-	94
11 ———	-	-		27 ———	-	-	92 ½
12 to 15	-	-	92	28 ———	-	-	92 ¾
16 ———	-	-	92 ½	29 ———	-	-	94
17 ———	-	-	93	30 ———	-	-	94

Dr. Currie obſerves, that although this perſon ſeemed to bear the cold bath well, having loſt in thirty minutes only 2½ degrees of heat, yet that when expoſed afterwards to the wind, he ſhivered violently, and loſt his heat very faſt. He was put into a warm bath, heated to 96°, but recovered his heat very ſlowly, as appears from the following table:

1 minute after,			heat 88°	
2 minutes	-	-	90	
2 ———	-	-	90 ½	
4 ———	-	-	90	great ſhivering.
5 ———	-	-	90	here the bath was heated to 100°.
6 ———	-	-	90	ſhiverings ſtill.
7 ———	-	-	90	ditto.
8, 9	-	-	90 ½	ditto.
10 ———	-	-	92	ditto.

11 mi-

11 minutes after, heat	92°	bath heated to 104°.
12 —— - -	94	
13 —— - -	93	—— heated to 108°. Shiverings.
14 —— - -	93	a bladder with very hot water applied to the ſtomach.
15 —— - -	94	
16 —— - -	96	very comfortable.

Experiment VI.

Richard Edwards, the original ſubject of experiment, was again immerſed in the cold bath, of the temperature of 40°, and remained in it three quarters of an hour. His heat, it is remarked, was previouſly 97°; his pulſe 90 in the minute. The mercury fell to 92°, was ſtationary for a few minutes, and then mounted, though, as uſual, with no regularity. In twenty-two minutes it ſtood at 96°; it then began to decline, and in twenty-three minutes more had ſunk to 94°. Upon his being expoſed as uſual to the wind, the mercury, we are told, ſunk as before, and he ſhivered violently. In the warm bath at 96° his ſhiverings continued ſeveral minutes, his heat remaining at 90 and 91°. In ſeven minutes the mercury began to riſe faſt, and five minutes after was at 96°.

Expe-

Experiment VII.

The effects of forty-five minutes immerſion in the cold ſalt-water bath, at 40°, were propoſed to be tried on Richard Sutton. He was, it ſeems, much under the impreſſions of fear, and his heat previouſly raiſed the mercury only to 94°. The mercury, we are told, ſunk, as before, on his immerſion, but to an unuſual degree. It did not ſtop in its fall till it got to 83°, which the author thinks might be in part accounted for by the extraordinary chattering of his teeth, admitting ſome contact of the air. It then mounted in the uſual irregular way, and at the end of thirteen minutes had got to 92°. Here it ſtood for nineteen minutes longer with little variation; at the end of this time it began to fall rapidly, though irregularly, and in three minutes was down at 85°. He had now been thirty-five minutes in the water, and Dr. Currie did not think it ſafe to detain him longer; he therefore hurried him into a warm bath, heated to 96°, where he ſhivered much. The bath was heated gradually to 109°, and in this heat he recovered his pro-

per

per temperature in about twenty-eight minutes. Being then put into a warm bed, he fell into a profuſe perſpiration, which left him in his uſual health.

With reſpect to the ſtate of the pulſe in theſe experiments, Dr. Currie obſerves that it was not poſſible to keep the ſubjects of them from ſome degree of previous agitation, and that this always quickened the pulſe. The natural pulſe of Edwards, it ſeems, was about 70 in the minute; but Dr. Currie found that it was never ſlower than 85 before immerſion, and generally more. However this might be, it invariably, we are told, ſunk to 65, or from that to 68, in the water, and became firm, regular, and ſmall. After being long in the bath, it could hardly be felt at the wriſt, but the heart pulſated with great ſteadineſs and due force. In the laſt experiment, it ſeems, when the heat ſunk rapidly, Sutton ſaid he felt a coldneſs and faintneſs at the ſtomach, which he had not perceived before, and the motion of his heart was then found to be feeble and languid. In ſome other trials of the effects of immerſion in freſh water, (one of which is related in a ſubſequent part of the paper) the ſame coldneſs at the ſtomach is ſaid to have preceded a rapid fall of the mercury;

and

and theſe facts, together with the effects found from applying a conſiderable heat to this part when the body was chilled with cold, have convinced our author that there is ſome peculiar connexion of the ſtomach, or of the diaphragm, or both, with the proceſs of animal heat. Whoever, he remarks, will conſider the rapidity with which a dead body would have cooled immerſed in water of the temperature of 40°, may form ſome eſtimate of the force with which the proceſs of animal heat muſt have acted in the experiments already recited. Theſe experiments, however, he contends, furniſh irrefragable proofs of the futility of ſome of the theories of animal heat. The increaſe of heat, in fever, he obſerves, has led ſome perſons to believe that animal heat is produced by, or immediately connected with, the action of the heart and arteries; but in theſe experiments, he remarks, although heat muſt have been generated in the bath with more than fourfold its uſual rapidity, the vibrations of the arterial ſyſtem were unuſually ſlow. Another, and a very beautiful theory of animal heat, continues the author, ſuppoſes it immediately to depend on reſpiration; but in the bath, after the firſt irregular action of the diaphragm from the

ſhock of immerſion was over, the breathing, he obſerves, became regular, and unuſually ſlow. Laſtly, the curious phænomenon of the heat riſing and falling, and riſing again, in the bath, with the body at reſt, and the temperature of the ſurrounding medium unchanged, is, he thinks, fatal to thoſe theories of animation which conſider the living body as a mere machine, acted on by external powers, but not itſelf originating action, and differing from other machines only in the peculiarity of the powers which are fitted to ſet it in motion. He has ſaid that the temperature of the medium continued unchanged, but it may be ſuppoſed that the bath was heated a little during the experiments; he allows that it was ſo; but being expoſed, with a large ſurface, to the open air, the wind blowing briſkly over it, its heat, he obſerves, was little altered; in twelve minutes immerſion it had gained nearly one degree, and in forty-five minutes, the longeſt duration of any of the experiments, it had gained three degrees. As this acceſſion was regular, it would not, he obſerves, have invalidated the foregoing obſervations, even if it had been greater.

Many other trials were made on the effects of immerſion in water on the human heat, which the

the author ſpeaks of generally, under the general concluſions which they ſuggeſted.

The experiments already recited, ſuggeſted to him the notion, that in all changes from one medium to another of different denſity, though of the ſame temperature, there is a loſs of animal heat. He found, however, that this concluſion requires many reſtrictions.

1. His experiments being made on bodies of ſuch very different denſity as air and water, do not, he obſerves, admit an univerſal inference of this ſort.

2. Being all made in a temperature fifty degrees under the human heat, no certain concluſion, he thinks, can be drawn as to what might happen in degrees of heat much higher, where it is probable the effects of the change, if it appeared at all, might be leſs ſtriking. It would ſeem, however, he obſerves, that after a perſon is long chilled in cold water, the firſt effect of paſſing through the external air into the warm bath, is a fall of heat in the air, and after this a ſtill greater fall in the warm bath, followed, however, by a ſpeedy riſe.

The air and the water being equally cold, and both 45° or under, he found the loſs of heat

heat in paſſing from the one to the other to be regulated in the following way :

1. If, inſtead of being expoſed naked to the wind previous to immerſion in the water, the body was kept warm by a flannel covering, the mercury fell much leſs on the firſt plunge.

2. If, after plunging into the water, the perſon continued in it only a minute or two, a ſubſequent fall of the mercury did not always take place, on his emerging into the air. On the contrary, there was ſometimes a riſe on ſuch occaſions of the mercury, eſpecially if the atmoſphere was at reſt.

3. In one inſtance, after continuing in the water fifteen minutes, on riſing into the air in a perfect calm, though during a froſt, there was little or no ſeeming diminution of the heat; while expoſure under ſimilar circumſtances, with a north-eaſt wind blowing ſharply, though the air was many degrees warmer, produced a rapid diminution. The effects of the wind in diminiſhing the human heat, are, he obſerves, ſtriking, and are not, in his opinion, explained by the common ſuppoſitions.

4. The loſs of heat by a change of media, depends, he thinks, much on the rapidity of the change, for the plaſtic power of *life* in varying

rying the process of animal heat, so as to accommodate it to the external changes, acts for a time with great celerity, though this celerity seems to diminish with the strength.

Experiment VIII.

In a large room, where the mercury stood at 36°, two slipper baths were placed at the distance of six yards from each other. One was filled with cold salt water of the temperature of 36°, the other with water heated to 96°, which was the author's own heat. Undressing himself in an adjoining room by a fire, he afterwards slipped on a loose flannel dress, and descended *slowly* into the cold bath, where he remained two minutes; he ascended *slowly* into the air, and then sunk himself in the warm bath, where he remained two minutes also; he returned to the cold bath, where he staid two minutes as before, and removed from it again to the warm bath. But during all these changes of media and temperature, the thermometer with its bulb under his tongue never varied from 96°. He attributes this partly to the heat of his body being in some degree defended

by the flannel dreſs, partly to the calm of the air, but chiefly to the ſlowneſs of motion in theſe changes. He is aware that it may be ſaid that the time of ſtaying in the different baths was not long enough to produce any ſenſible change in the heat of circulating fluids of ſuch a maſs; but this, he obſerves, is not conſiſtent with many of the other facts.

5. The influence of the application of cold water to the ſurface of the body on the heat, is in ſome reſpects, he obſerves, regulated by the animal vigour, as the following experiment will ſhow.

Experiment IX.

In the ſame room he placed a large empty veſſel: in this two young men ſat down in ſucceſſion, each with the bulb of a thermometer under his tongue. A man ſtanding on a bench with a bucket containing four gallons of cold ſalt water, poured the whole of this quantity on the head and ſhoulders of each of them, ſuffering it to run down on the reſt of the body. This proceſs took up nearly a minute, during which our author examined the mercury, and found it unchanged. They were

were both, we are told, directed to continue ſitting without motion for a minute after, during which, in both inſtances, the mercury roſe two degrees. A third, much inferior in vigour, ſubmitted, it ſeems, to the ſame experiment, and the mercury continued during the affuſion of the water unchanged, but in a minute after ſunk half a degree. In fevers, Dr. Currie obſerves, where the heat is generally increaſed from two to ſix degrees above the ſtandard of health, pouring a bucket of cold water on the head always reduces the pulſe in frequency, and commonly lowers the heat from two to four or five degrees. Of this ſalutary practice he hopes ſoon to ſpeak at large to the public.

6. The power of the body in preſerving its heat under the impreſſions of cold, and the changes of temperature and of media, ſeems in ſome meaſure, our author thinks, to be regulated by the condition of the mind. That fear increaſes the influence of cold, and of many other noxious powers, will not, he obſerves, be doubted; but the ſtate of the mind to which he alludes, is that of *vigorous attention* to other objects. This, it is well known, will, to a certain degree, deaden, or, indeed, pre-

vent, the ſenſation of cold; and what does this, he apprehends, prevents, or at leaſt weakens, its phyſical action. Thus, in ſome ſpecies of madneſs, he obſerves, where the ideas of imagination are too vivid to admit the impreſſions of ſenſe, cold is reſiſted to an extraordinary degree. He has ſeen a young woman, once of the greateſt delicacy of frame, ſtruck with madneſs, lie all night on a cold floor, with hardly the covering that decency requires, when the water was frozen on the table by her, and the milk that ſhe was to feed on was a maſs of ice.

7. There are, he thinks, particular conditions of the atmoſphere, not perfectly underſtood, that ſeem to have an influence in depriving us more ſpeedily of our animal heat, than others where the cold is greater.

In addition to his experiments with ſalt water, Dr. Currie made ſome trials to aſcertain the effects of immerſion in freſh water on the animal powers, and particularly on the heat; of theſe he has thought it ſufficient to relate the following:

Experiment X.

In the ſame veſſel, containing an equal bulk of freſh water, Richard Edwards, the ſubject of his firſt experiments, was immerſed, at the ſame hour of the day. His heat previouſly was 98°, his pulſe beat 92 in the minute; the heat of the air was 41°½, that of the water 40°. The wind was in the weſt, ſo that in the court where the bath ſtood there was a perfect calm. As the author had ſome fears of the iſſue of this experiment, inſtead of expoſing him for a minute naked to the wind before immerſion, he was covered with a flannel dreſs from the air till the inſtant he deſcended into the water, into which he was ſuffered to ſink himſelf ſlowly, with the bulb of the thermometer under his tongue. The following table exhibits the reſult:

Immediately on immerſion, heat	-	98°	
1 minute after	-	97	½
2 minutes	- -	97	
3 ——	- -	98	
4 ——	- -	97	½
5 ——	- -	95	
6 ——	- -	96	
7, 8	- -	96	
9 ——	- -	97	
10 ——	- -	97	
14 min. after, heat	-	96°	½
15 ——	- -	96	
16, 17, 18, 19, 20		96	
25 ——	- -	95	
26 ——	- -	94	
27 ——	- -	93	½
28, 29	- -	94	
30 ——	- -	93	
31, 32	- -	94	
33, 34	- -	92	½

He now, we are told, got out into the air very ſlowly, and ſtood in it three minutes, the wind *not* blowing on him. He loſt one degree of heat at firſt, which he recovered. He was then put into a warm bath at 90°, which at firſt *he felt* warm, and his feet and hands were painful: but in two minutes he fell into a very violent ſhiver, and his heat fell two degrees. The bath was then heated to 95 and 96°, but ſtill he felt cold. It was heated to 99°; he continued in it five minutes, and his heat was 91°. The heat was gradually raiſed to 106°, when the ſenſe of coldneſs of which he had complained at the pit of the ſtomach gradually went off. Before this Dr. Currie had uſually kept him in the warm bath till his natural heat was nearly recovered; but after being half an hour in the heat of 106°, his own heat was ſtill 93°. He now became ſick and very languid, a cold ſweat covered his face, and his pulſe was very quick and feeble. He was removed into bed, but paſſed a feveriſh night, and next day had wandering pains over his body, with great debility, reſembling the beginning ſtage of a fever. By cordials and reſt this went off.

This experiment, the author obſerves, clearly enough

enough confirms the greater danger of being wet with freſh than with ſalt water; but in itſelf points out nothing certain beſides, except that it is not to be raſhly repeated. He means, he tells us, to try ſome of theſe experiments to a greater extent on the brute creation, when he has procured thermometers better ſuited to his views. The thermometers he employed had not a ſufficient mobility for very nice experiments, and he is aware that in particular inſtances this may have miſled him, though the general reſults, which is all that is of importance in ſuch experiments as theſe, will, he hopes, be found juſt and true.

Towards the concluſion of his paper he offers the following obſervations on the ſubject that led to theſe experiments.

1. It is, he thinks, already well known among ſeamen, that where there is only the choice of being wet with ſalt or with freſh water, it is always ſafeſt to prefer the firſt. In the heavy ſhowers of rain, hail, or ſnow, by which gales of wind are generally accompanied, the men that muſt be expoſed to them, ought, he obſerves, like Lieutenant Bligh and his crew, to wring their clothes out of ſalt water.

2. In all cases where men are reduced to such distress by shipwreck or otherwise, that they can only choose between the alternative of keeping the limbs constantly immerged in the sea, or of exposing them to the air while it rains or snows, or the sea is at times washing over them, it is, he thinks, safest to prefer a constant immersion; because, in the northern regions, where the cold becomes dangerous to life, the sea is almost always warmer than the air, as the experiments of Sir Charles Douglas show*; and because there is not only a danger from the increased cold produced by evaporation, but also from the loss of heat by the rapid changes of the surrounding medium, as the foregoing experiments point out.

3. Whether, in high and cold winds without rain or snow, and where a situation may be chosen beyond the reach of the waves, it is safer to continue in the air, or to seek refuge in the sea, must, he thinks, depend upon several circumstances, and cannot perhaps be certainly determined. The motives for choosing the sea will, he is of opinion, be stronger in proportion

* See Philosophical Transactions, Vol. LX. p. 39

portion as the wind is high and cold, and in proportion as the ſhore is bold.

The foregoing narrative, our author obſerves, ſhows that men may ſurvive twenty-three hours immerſion in the ſea, of the temperature of 38 or 40°, (as great a cold as it almoſt ever poſſeſſes) without food or water, and almoſt without hope of relief; but that any man, he adds, ever ſurvived an equally long expoſure to the higher degrees of cold of the atmoſphere, in the ſame circumſtances, does not appear. Though in the caſe related, immerſion in water did not prevent thirſt, yet there is no doubt, he thinks, that it alleviated it; a circumſtance of high importance, he obſerves, towards the preſervation of life.

In a poſtſcript to his paper, Dr. Currie remarks that he has purpoſely avoided any reaſoning on the cauſes of the loſs of vital heat on the change of media in the experiments recited. It may, he is aware, be ſuppoſed that during immerſion, the water immediately in contact with the ſkin having become heated to a certain degree, the naked body, on riſing from it into the air, was in fact expoſed to a colder medium, and thus the loſs of heat, in this inſtance, produced. His examination of the heat of the water during immerſion not having been made

in

in contact with the body, he does not deny that there is some foundation for the supposition; and the cases, he allows, are by no means exactly parallel between immersion in an open vessel, however large, and immersion in the sea, where the constant undulation may be presumed to occasion a continual change in the surrounding fluid. But whatever allowance may be made for the circumstance mentioned, he is persuaded that the difference between the density of air and water being considered, it is not sufficient to explain the loss of heat in the instance alluded to. The changes of temperature in the living body are governed, he observes, by laws peculiar to itself. He has found, in certain diseases, greater and suddener variations than any mentioned, from applications of cold very gentle in degree, and momentary in duration.

Mr. Hunter, in his "Experiments and Observations on Animals producing Heat," has objected to taking the heat of the human body by introducing the bulb of the thermometer into the mouth, because it may be affected by the cold air in breathing. This objection our author allows to be founded, if the bulb be placed on the upper surface of the tongue; but if it be under it, and the lips shut, the effects

of

of reſpiration, he aſſures us, may be diſregarded, as he has found from many hundred experiments. The heat, we are told, may be obſerved in this way with eaſe and certainty, by employing thermometers curved at that end to which the bulb is affixed, (the bulb being introduced at the corner of the mouth) ſome of which have been made for him by Mr. Ramſden, according to a form given, as well as others on Mr. Hunter's plan. From repeated trials it appears to him, that when the uſual clothing is on, the heat of the living body may be taken, with nearly the ſame reſult and equal certainty, under the tongue with the lips ſhut, at the axilla with the arm cloſe to the ſide, and in the hollow between the ſcrotum and the thigh; but that every other part of the ſurface is liable to variation and uncertainty. It is evident, he obſerves, that of theſe three methods, the firſt only can be employed when the trunk of the body is immerſed in water; and even when the naked body is expoſed to the cold air, the firſt method ſeems to him the beſt, the heat remaining moſt ſteady under the tongue: the axilla, according to his experience, is the next beſt in order; and the worſt, the lower part of the groin: for the ſcrotum and the

parts

parts of generation, he obſerves, loſe their heat on the application of cold more ſpeedily, perhaps, than any other part of the body, the extremities not excepted.

XIV. *An Account of the Quaſſia Polygama, or Bitter-wood of Jamaica; and of the Cinchona Brachycarpa, a new Species of Jeſuit's Bark found in the ſame Iſland. By Mr.* John Lindſay, *Surgeon in Weſtmoreland, Jamaica.* Vide *Tranſactions of the Royal Society of Edinburgh*, Vol. III.

THE tree, which is the ſubject of this paper, has been long known in Jamaica, and in ſome other iſlands in the Weſt Indies, not only as an excellent timber, but as affording an uſeful medicine in putrid fevers and fluxes. In Jamaica it is called *Bitter wood*; in the windward iſlands, *Bitter aſh*; and in the French iſlands it is known by the name of *Ecorſier*.

The

The bark has for ſome time been preſcribed by medical practitioners in Jamaica, and conſiderable quantities of it have been exported to England for the purpoſes of the brewers of ale and porter. On theſe accounts Mr. Lindſay has been induced to communicate the preſent deſcription of this tree to the public.

Prefixed to this deſcription is a ſhort hiſtorical account of the tree in queſtion, collected from preceding writers.

The firſt of theſe is Sir Hans Sloane, who, in his viſit to Barbadoes, having noticed the Bitter wood, has given the following deſcription of it in his Catalogue; "Melanomma et melanoxylum, "arbor laurifolia nucifera, gemmis nigricanti-"bus, Americana:" and refers to Plukenet's Phytographia, Tab. 205, fig. 3; but the plant there delineated, our author obſerves, is different from the preſent.

Dr. Patrick Browne, and after him Mr. Long, in their Hiſtories of Jamaica, mention this tree by the names of *Xylopicrum*, *Xylopia glabra*, *Bitter-wood*, or *Bitter Aſh*. Mr. Long, in ſpeaking of the *Quaſſia Amara*, thinks the Bitter Aſh of St. Chriſtopher's is the ſame, but does not ſeem to know whether the Bitter Aſh has been found in Jamaica.

Dr.

Dr. William Wright, in his Account of the Medicinal Plants growing in Jamaica *, mentions this tree under the title of *Picrania Amara*, a new genus belonging to the claſs *Pentandria Monogynia*, and ſays it is uſed in putrid fevers as an antiſeptic, and that leſs of it will do than of the *Quaſſia Amara* of Linnæus. Dr. Wright, our author obſerves, was naturally led to place this tree in the claſs and order he has done, from finding hermaphrodite flowers and ſeeds on the ſame tree; but at the ſame time he was aware that this tree has a great affinity to the genus Quaſſia.

The laſt writer referred to by our author is Dr. Olof Swartz, concerning whom he remarks, that having examined moſt of the plants in Jamaica, he probably had ſeen this tree in flower and fruit, as he ſtyles it in his Prodromus, "*Quaſſia Excelſa*, floribus hermaphroditis ſpicis paniculatis, foliis impari-pinnatis, foliolis oppoſitis petiolatis, petiolo nudo."

Mr. Lindſay ſuppoſes that no other deſcription of this tree has yet appeared; of courſe he had had no opportunity of knowing, at the

* London Medical Journal, Vol. VIII. p. 275.

time

time his paper was written, that Dr. Swartz, in the ſame year in which he publiſhed his Prodromus, communicated to the Royal Academy of Sciences at Stockholm a botanical deſcription and figure of the Quaſſia Excelſa, which the Academy have publiſhed in their Tranſactions for the year 1788.

We now come to Mr. Lindſay's Account of this tree, which he deſcribes as being very common in moſt of the woodlands in Jamaica; and as being beautiful, tall, and ſtately. He has meaſured one, it ſeems, which was an hundred feet in length, and ten feet in circumference.

He obſerves that the trunk is ſtraight, ſmooth and tapering, ſending off its branches towards the top; that the outſide bark is pretty ſmooth, of a light gray or aſh colour, from various lichens; that the bark of the roots is of a yellow caſt, ſomewhat like the Cortex Simarouba; and that the inner bark is tough, and compoſed of fine flaxy fibres; that the wood is of a yellow colour, tough, but not very hard; that it takes a good poliſh, and is uſed as flooring; that the leaves are ſub-alternate; the ſmall leaves being in pairs, from five to eight, ſtanding oppoſite to each other on ſhort foot-ſtalks,

and

and ending with an odd one; that they are of an oblong oval ſhape, and pointed; the ribs reddiſh, and the young leaves covered with a fine browniſh down; that the flowers come out in bunches or cluſters from the lower part of the laſt ſhoot before the leaves, and ſtand on round footſtalks; that the flowers are ſmall, of a yellowiſh green colour, with a very ſmall calyx; and that the male or barren tree produces flowers nearly ſimilar to the hermaphrodite, but which have only the rudiments of a ſtyle.

The fruit, he tells us, is a ſmooth black *drupa*, round ſhaped, and of the ſize of a pea. There is but little pulp, and the nut covers a round kernel. Theſe *drupæ*, he obſerves, are generally three, ſometimes two, and often only one, attached ſideways to a roundiſh fleſhy receptacle. It flowers in October and November, and its fruit is ripe in December and January.

Except the pulp of the fruit, every other part of this tree, we are told, has an intenſely bitter taſte. From this quality, Sir Joſeph Banks, Dr. Solander, and Dr. Wright, were induced, it ſeems, to give it the name of *Picrania Amara*. In taſte and virtues, our author has found it nearly equal to the Quaſſia of Surinam,

rinam *, and has been credibly informed that it is sold in London for the Quassia Amara, and he thinks, it may be safely used in all cases where

* From a paper entitled " of the true Quassia Amara, " and of the false (*Om den rette Quassia Amara, og om* " *den falske*)" lately published by Mr. N. Tönder Lund, in the Transactions of the Natural History Society at Copenhagen, it would seem that what has been generally imported into Europe under the name of Quassia Amara, is spurious. ' Mr. Von Rohr,' says the author of the paper in question, ' who in the years 1783, 4, and 5, visited different parts of the Continent of America, and several of the West India islands, and collected many rare ' plants, has sent to me, among other things, a specimen ' of the Quassia Amara, and with it the following note : " In my whole voyage I saw only a single wild shrub of " Quassia Amara, and that was near the river Tamaco, in " the neighbourhood of St. Martha. The planters in Su- " rinam and Cayenne cultivate it on account of the mag- " nificence of its flowers, and its use. In Surinam, the " flowers alone are used as tea. The wood is extremely " dear ; and I can with truth say that I know not where I " could buy a single pound of it. The stem never exceeds " two inches in diameter. Had I been desirous of extir- " pating this shrub from the neighbourhood of the Ta- " maco, I might perhaps have got together ten pounds of " it. It is certain, therefore, that impostors have sent " into Europe, under the name of Quassia Amara, the " wood of another species of Quassia, which has the ap-

where that drug has been thought proper, whether as an antiſeptic, or in caſes of weakneſs in the ſtomach and bowels. It may either, he obſerves, be given alone, or joined with the Peruvian bark.

He has ſeen, he tells us, the happieſt effects from the uſe of this medicine in obſtinate remitting fevers from marſh miaſmata, in agues which had reſiſted the uſe of Peruvian bark, and in dyſenteries of long ſtanding. In Jamaica, it ſeems, it is in daily uſe in dropſies from debility, either in ſimple infuſion or tincture, or joined with aromatics and chalybeates.

Dr. Drummond, an eminent phyſician in Jamaica, is ſaid to preſcribe it with great ſuc-

" pearance of an aſh tree, and which is likewiſe bitter. In " a word, you may be aſſured that any ſpecimen of Quaſ- " ſia, the ſtem of which, including the bark, is more than " two inches in diameter, is not the true Quaſſia." From ' this account," adds Mr. Lund, " it ſeems pretty cer- ' tain, that the pieces of wood which are met with in the ' ſhops, and which have more the appearance of timber ' than of a medicine, are not the true Quaſſia, but are ' procured from that ſpecies of it which the Engliſh call ' the bitter aſh."—See *Skrivter af Naturhiſtorie-Selſkabet.* 8vo. Copenhagen, 1790. Vol. I. Part 2, page 68. EDITOR.

ceſs

ceſs in the above caſes, as well as in amenorrhœa, chloroſis, dyſpepſia, and in that ſpecies of pica, called *Dirt-eating*, ſo fatal to a number of negroes.

The bark of the tree, but eſpecially the wood, Mr. Lindſay obſerves, is intenſely bitter. He has uſed both in various forms.

The bark, it ſeems, is difficult to be reduced to powder. The doſe, he obſerves, is from 15 grains to 1 drachm, either by itſelf, or joined with the Peruvian bark.

Mr. Lindſay has employed the wood as well as the bark of this tree, both in infuſion and decoction; for the former he directs the proportions to be from two drachms to half an ounce of the bark or wood to a pint of water; and for the latter the ſame quantities to a pint and a half of water, which is to be boiled to a pint. Of either of theſe the doſe is directed to be a wine-glaſs full every three, four, or ſix hours, according to circumſtances.

In certain caſes of dropſy, in amenorrhœa and chloroſis, he joins to this remedy aromatics and other medicines; and in worm fevers, the cabbage bark or other vegetable anthelmintics.

Mr. Lindſay gives the following botanical

deſcription of the Quaſſia Polygama*. This deſcription is accompanied with engraved figures

* As we think it will be a gratification to many of our readers to ſee Dr. Swartz's deſcription of the ſame tree, under the name of Q. Excelſa, we ſhall here inſert it.

" *Arbor* excelſa.

" *Truncus* craſſus. *Cortex* cinereus, rimoſus.

" *Lignum* duriſſimum, album.

" *Rami* patentes.

" *Folia* pinnata cum impari, alterna, ſparſa. *Petioli* te-
" retes glabri.

" *Foliola* petiolata, 4-6juga, oppoſita, elliptica, acumi-
" nata, integerrima, nervoſa, venoſa, glabra, conſiſtentia.
" *Petiolæ partiales* breves, teretiuſculi, glabri.

" *Racemi* axillares, compoſiti, paniculati, ramis dicho-
" tomis patentibus, diffuſis, multifloris.

" *Flores* parvi, albidi, polygami, maſculis et hermaphro-
" ditis in eodem racemo.

" MASC.

" CAL. 5-phyllus. *Foliola* conica, dentiformia, minuta.

" COR. *Petala* 5 ſub receptaculo inter dentes calycis in-
" ſerta, oblonga, adſcendentia.

" STAM. *Filamenta* 5 a latere receptaculi exſerta, ſubu-
" lata, adſcendentia, petalis longiora, villoſa. *Antheræ*
" ſubgloboſæ, bivalves.

" PIST. rudimentum.

" HERMAPHROD.

" CAL. et COR. ut in mare.

" *Filamenta* 5 breviora. *Antheræ* fertiles.

" PIST.

figures of the leaves and fructification, for which we must refer our readers to the work itself.

" Arbor excelsa sæpe centum pedes alta. " *Caudex* spectabilis, erectus, glaber. *Cortex* " cinereus in Epidermide, interne albido fla- " vescens, tenax et ex fibris lentis confectus. " *Ramuli* alterni teretes.

" *Folia* sub-alterna. *Foliola* 5—10 jugata " impari-pinnata, oppositа, oblonga, obtuse- " acumi-

" Pist. *Germina* 3. contigua, receptaculo tumido insi- " dentia, globosa, glaberrima. *Stylus* staminibus longior, " 3queter, 3-fidus. *Stigmata* simplicia.

" Per. *Drupæ* tres, globosæ, uniloculares, bivalves, re- " ceptaculo ampliato, hæmisphærico insidentes, distantes, " magnitudine pisi majoris.

" Sem. *Nuces* solitariæ, globosæ, glabræ, nauco fra- " gili."

From this description, Dr. Swartz observes, we may perceive the near affinity of this tree to the genus of Quassia. It approaches, he thinks, nearer to the Q. Simarouba than to the Q. Amara; but differs from both in being without the *squamulæ nectarii*, which are placed under the germen on the basis of the filaments, and in having in general five, and sometimes, though rarely, only four stamina instead of ten. These two characteristic differences, however, are not, in his opinion, sufficient to constitute a distinct genus.

" acuminata, glabra, integerrima, venoſa, bre-
" viter petiolata. *Petiolus communis* ſubtus nu-
" dus. *Stipulæ* laterales parvæ, lanceolatæ,
" erectæ, deciduæ.

" *Inflorescentia* cymoſa. *Pedunculi* ſolitarii,
" teretes, plerumque nudi, in plurimos ramu-
" los diviſi.

" Flos Masculus.

" *Cal. Perianthium*, infernum, minimum, ex
" ſquamulis quatuor compoſitum. *Foliolis*
" ovatis perſiſtentibus.

" *Cor. Petala* 4, oblonga, obtuſa, æqualia, ſeſſi-
" lia, ſuberecta. *Nectarium* ex ſquamis 4 ovatis,
" villoſis, baſi filamentorum interiori inſertis.

Dr. Swartz agrees with Mr. Lindſay in his account of the intenſely bitter taſte poſſeſſed by every part of the tree; and obſerves that the negroes have recourſe to an infuſion of it in rum in ſome affections of the ſtomach. He likewiſe mentions its uſe as an anthelmintic. His figure of the plant agrees with that given by Mr. Lindſay.—*See* Kongl. Vetenſkaps Academien nya Handlingar, Tom. 9, p. 302. 8vo. Stockholm, 1788. Editor.

" *Stam.*

" *Stam. filamenta* 4, 5, 6, filiformia, ſube-
" recta, æqualia, corolla longiora, receptaculo
" inſerta. *Antheræ* ſimplices erectæ.

" FLOS HERMAPHRODITUS *in diverſa Arbore.*

" *Cal.* et *Cor.* ut in mare.

" *Stam.* ut in mare, ſed filamenta corollam
" vix ſuperant.

" *Piſt.* Receptaculum carnoſum, orbicula-
" tum, elevatum, germine latius. *Germen* ſub-
" ovatum, ex duobus, tribus, raro quatuor
" compoſitum, leviter coherentibus. Styli
" craſſiuſculi, erecti. Stigmata 2, 3, 4, ſim-
" plicia, declinata.

" *Per.* Drupæ 2, 3, 4, globoſæ, laterales,
" diſtantes, nigerrimæ, nitentes, receptaculo
" inſertæ.

" *Sem.* Solitaria globoſa, unilocularia, nauco
" fragili tecta."

Mr. Lindſay next gives an account of the Cinchona Brachycarpa, a new ſpecies of Cinchona growing in Jamaica. This tree was firſt diſcovered by him in November, 1784, on

the north-eaſt ſide of the hill that overlooks the works of Mountain Spring eſtate, in the pariſh of Weſtmoreland, and afterwards on ſome of the mountains near the Moreland eſtates in the ſame pariſh. As it has hitherto been unknown to naturaliſts, he has given the following botanical account of it, which in the work itſelf is illuſtrated by an engraving.

"PENTANDRIA MONOGYNIA.

" *Cal.* Perianthium monophyllum, ſuperum, " campanulatum, parvum, 5 dentatum, per- " fiſtens, dentibus acutis, erectis.

" *Cor.* Monopetala, infundibuliformis. *Tu-* " *bus* cylindraceus longiſſimus. *Laciniis*, an- " guſto oblongis, patente revolutis.

" *Stam.* Filamenta 5, interdum ſex, fili- " formia, tubo longiora, in fauce tubi inſerta. " *Antheræ* lineares erectæ.

" *Piſt.* Germen ovatum, inferum. Stylus " filiformis longitudine ſtaminum. Stigma " craſſiuſculum ovatum ſimplex.

" *Per.* Capſula oblongo ovata magna, calyce " coronata, bipartibilis, dehiſcens in duas

" partes

" partes interius dehiſcentes, diſſepimento pa-
" rallelo.

" Semina plurima, parva, compreſſa, mar-
" ginata.

" Arbor erecta 20 pedes alta, ramis patenti-
" bus. Cortex fuſco-cinereus, ſapore primo
" dulci, mox amareſcente.

" Folia oppoſita, oblongo-ovata, integerri-
" ma, glabra, ſubtus venoſa, petiolata. Pe-
" tioli breves, ſupra ſulcati. *Stipulæ* laterales,
" ovato-lanceolatæ, integræ, caulem arcte am-
" plexantes.

" *Inflorescentia* paniculato-corymboſa, termi-
" nalis. *Pedunculus* plerumque brachiato-tri-
" ternatus, teres, nudus. *Corolla* glabra, pal-
" lide rubra vel carnea, tres circiter pollices
" longa."

Mr. Lindſay has met with this tree only in three places; in the inland, woody, and mountainous parts of Weſtmoreland and Hanover pariſhes. The talleſt he has ever ſeen was about thirty feet high, and 7 or 8 inches in diameter. The branches, we are told, are few and ſpreading. The leaves ſtand in pairs, are ſmooth and ſhining, and are very like thoſe of the *Portlandia grandiflora*. The flowers grow in pretty large cluſters, on the extremities of

the

the branches; and have nearly the beauty and appearance of the common honey ſuckle, but are rather larger.

The ſeed-pod, he obſerves, is larger than in any other plant of this genus; is oval, adorned with a calyx of a firm conſiſtence, ſomewhat ſtriated, and black-coloured; and when ripe, ſplits in two, and diſcharges a number of ſmall, flat, brown ſeeds, with a membrane nearly round the edges.

The trunk and branches are deſcribed as being of a browniſh gray colour, with a few ſuperficial furrows, and croſs cracks like the Peruvian bark. The bark of the trunk, we are told, is pretty thick; and when wounded, exudes a ſmall quantity of a milky juice. The bark, when dried, is of a purpliſh brown colour on the inſide. It is fibrous, and more difficult to pulveriſe than the Peruvian bark. The powder is of a purpliſh gray colour, and taſtes ſweet, then bitter and aſtringent.

This ſpecies, our author thinks, might be uſed as a ſubſtitute to the Peruvian bark; but unfortunately the tree is ſcarce and ſmall, and enough of it cannot be had, at leaſt in thoſe parts of Jamaica in which he has found it growing. This loſs, he obſerves, may be compenſated

penſated by the abundance of the Cinchona Caribæa *ſeu* Jamaicenſis, deſcribed by Dr. Wright in the 67th vol. of Phil. Tranſ. and which, he is aſſured, has been found to anſwer all the purpoſes of the Cinchona Officinalis.

He does not pretend to hold up this new bark as ſuperior, or even equal to the Peruvian. He has given it, however, in the ſlighter caſes of intermitting and remitting fevers, with good effect; and in a few inſtances, it produced a cure, where the patients had taken the common and red barks to no purpoſe.

To perſons afflicted with intermittents, he gives of the powder from twelve grains to thirty every hour, or every two hours in the abſence of fever. By this means, a ſtop has been put to the fever, and the patients have recovered. He has alſo adminiſtered this new bark in dyſpepſia, both in powder and infuſion, and found that it ſat eaſy on the ſtomach, and promoted appetite. He had ſhewn this ſpecies of Cinchona to Dr. Wright, before he left Jamaica, and gave him a little of the bark. The Doctor gave it in powder to a patient, but found it emetic, which could only happen, our author thinks, from ſome peculiarity of con-

conſtitution *. In a letter to Mr. Lindſay, he intimates, that probably the ſame thing would happen, with the bark of every other tree of this genus, if given before it is completely dried.

Mr. Lindſay's paper cloſes with ſome few remarks on the red Peruvian bark.

This ſubſtance, when genuine, and given briſkly in pretty large doſes, will, he obſerves, in particular caſes, occaſion a degree of anxiety, depreſſion, giddineſs, and faintneſs, that are alarming to the patient and his friends, and perhaps, if not timely attended to, might be of ſerious conſequence. This, he adds, only happens in certain conſtitutions, and in weakly habits, or thoſe rendered ſo by diſeaſe.

This effect of the red bark, ſo far as he knows, has not been taken notice of by any writer, and when it occurs in private practice, is either not attended to, or imputed to ſome other cauſe. Mr. Lindſay gives the following extract of a letter from James Graham, Eſq. a reſpectable inhabitant of Jamaica, which, he thinks, places this circumſtance in a ſtrong light.

* See London Medical Journal, Vol. VIII. page 241.

Mr.

Mr. Graham, after having been afflicted with a fever and ague for ſeveral months, at length took the red bark in doſes of thirty grains each. "On taking the firſt," ſays he, "I inſtantly perceived an unuſual pungency "on my tongue. After the fifth, I felt an "anxiety about my breaſt with faintiſhneſs; "and had hardly done ſwallowing the ſixth, "when I was ſeized with giddineſs, an uni- "verſal tremor, and a profuſe cold ſweat. A "little wine, which was given me in this ſitua- "tion, relieved me conſiderably. In about "an hour, all the alarming ſymptoms diſap- "peared, but I remained weak and languid. "From that day, however, the fever left me, "and did not return till ſeveral months after, "when it was brought on by a cold, and was "removed by the bark adminiſtered in the "ſame manner, and attended nearly by the "ſame ſymptoms as before."

XV. *Extract of a Letter from the Reverend* Charles Perceval *to* Robert Perceval, *M. D. and M. R. I. A.* Vide *Tranſactions of the Royal Iriſh Academy.* Vol. IV. 4to. Dublin.

THIS letter contains an account of Jane Bern, a girl, eleven years old, low in ſtature, but of an healthy appearance, whom Mr. Perceval accidentally met with in the charter ſchool at Dunkerrin, in the King's County, and whoſe eyes are conſtructed in an extraordinary manner.

Their motion, inſtead of a regular horizontal one, from left to right, and *vice verſa*, is tremulous in all directions, and partly perpendicular, with a prominent motion of the globe of the eye; what lateral motion the eye is capable of is ſhort, interrupted, and gives that organ the appearance of being bound by ligaments, from which it ſtruggles to get free. The child cannot eaſily look upwards, or ſee any object placed above her eyes; and when ſhe reads, which ſhe does without any heſitation

tion or difficulty, ſhe reads perpendicularly from the bottom upwards, and holds the book accordingly.

The whole globe of the eye is of a reddiſh caſt, the white is ſtreaked with ſtriæ of a fainter red; the iris is of an uniform deep red, approaching to brown; both her eyes are weak and watery: and, when turned from the light, glow with a more fiery and vivid colour than when expoſed to it.

Mr. Perceval obſerves, that although ſhe reads very well, and ſeems poſſeſſed of a moderate plain underſtanding, ſhe is unable to write, knit, or ſpin. She has remarkably fine hair, it ſeems, of the colour of flax, but conſiderably whiter.

The miſtreſs of the ſchool informed him that the child was ſent to her from a nurſery in the county of Longford, in the North of Ireland.

Mr. Perceval was not informed whether any more of her family had theſe peculiarities.

The ſingularity of this caſe ſeems to conſiſt in the motion of the eyes; for the redneſs of the iris, and the white colour of the hair, evidently ſhow that it muſt be claſſed with thoſe

inſtances

inſtances of luſus naturæ *, which depend on a white colour of the pigmentum of the eye, correſponding with the colour of the hair, and which have been ſo ably deſcribed by the late Mr. John Hunter; and likewiſe by Dr. Blumenbach †.

* For the application of this term here we have the authority of Mr. Hunter, who, in his Eſſay on the Colour of the Pigmentum of the Eye in different Animals, obſerves that "the variation of colour appears moſt remarkable when a white ſtarts up, either where the whole ſpecies is black, as in the crow or blackbird; or where only a certain part of the ſpecies is black (but permanently ſo), as a white child born of black parents; and that a perfectly white child, whoſe hair is white, and who has the pigmentum alſo white, though born of parents who are fair, ſhould as much be conſidered as a play of Nature as the others. All thoſe luſus naturæ," he adds, "ſuch as the white negro, the pure white child of fair parents, the white crow, the white blackbird, white mice, &c. have likewiſe a white pigmentum correſponding with the colour of the hair, feathers, and ſkin." See Obſervations on certain Parts of the Animal Oeconomy. By John Hunter. 4to, London, 1786, page 204. EDITOR.

† *Vide* Jo. Frid. Blumenbachii de Oculis Leucæthiopum et Iridis motu Commentat. 4to. Goettingæ, 1786.

XVI. *An Attempt to determine with Preciſion ſuch Injuries of the Head as neceſſarily require the Operation of the Trephine. By* Sylveſter O'Halloran, *Eſq. M.R. I. A. Honorary Member of the Royal College of Surgeons in Ireland, and Surgeon to the County of Limerick Hoſpital. From the Tranſactions of the Royal Iriſh Academy*, Vol. IV.

Non fingendum, aut excogitandum, ſed inveniendum, quid natura faciat aut ferat. BACON.

WERE we to eſtimate the lights thrown on particular diſorders by the number of eminent men who have treated of them, we ſhould conclude that thoſe produced by external injuries of the head muſt be beſt underſtood, as from the days of Hippocrates to our own they have been conſidered with moſt particular attention. But however great our obligations to our anceſtors, and to many illuſtrious and learned moderns and contemporaries may be, yet our knowledge of this ſubject, ſo intereſting to mankind, is ſtill incomplete. The various

diſorders ſubſequent to injuries on the head have by no means been diſcriminated with ſufficient preciſion; nor have their ſymptoms or modes of treatment been clearly aſcertained; even the uſe of the trepan is now more indefinite than it was a century ago. The late Mr. Pott, as diligent and accurate an obſerver as any age or nation has produced, complains "of the darkneſs and obſcurity of this part of "ſurgery."

Enabled by cloſe and diligent obſervations, and by extenſive practice in this line for above thirty years, I have ventured, under the auſpices of the Academy, to determine a queſtion, perhaps the niceſt and moſt involved in ſurgery.

The operation of the trepan is very ancient; but being confined to narrow limits, was ſeldom performed without the greateſt caution and circumſpection; for it was interdicted over or near the ſutures, near the os ſquamoſum, and on or very near the occiput. This well explains an anecdote in our early hiſtory; for Connor Mac Neaſſa, King of Ulſter, that generous protector of the literati of his days, and cotemporary with Julius Cæſar, having his ſkull fractured in battle, his firſt ſurgeon, Finighin, refuſed to apply the trepan till his ſafety

was

was guaranteed by the nobles of the country, in caſe it did not ſucceed.

But the experience of the laſt and preſent centuries has proved, that there are very few parts of the head on which the trephine may not be applied when neceſſary. However, this information, in itſelf ſo intereſting, has by no means anſwered the ends that ſhould be expected from it; for inſtead of our determining, or even attempting to limit the caſes to which it ſhould be confined, it has been ſince adopted in almoſt every ſevere injury of the head, accompanied with untoward ſymptoms. To point out with perſpicuity and preciſion the caſes in which it can alone be uſeful to the patient, is the object of this paper. Theſe obſervations may be arranged under two articles—Fractures of the Cranium, and depoſits on the ſurface of the Brain or on its Membranes. Yet, even in the caſe of fractures, long experience has convinced me that many of them require no operation. As this is an object of great moment, I ſhall be as clear and conciſe as poſſible. To this purpoſe, I have ſelected three out of a great number of caſes; and the rather becauſe each had its particular ſymptoms, though all tending to the ſame point.

Caſe I. Mrs. Grogan fell from a window into the ſtreet, and received a violent contuſion on the front of the coronal bone. I ſaw her the next morning, and found a conſiderable tumour, which to the touch ſeemed to contain ſome fluid; but as I had ſeen many ſimilar ones ſubſide in four or five days, by the uſe of compreſſes wet in ſpirits, I treated this in the ſame manner. The ſwelling, however, remained, and in five days I propoſed opening it, which ſhe would not permit. The ſixth day ſhe again ſent for me; the tumour was ſtill the ſame, but the fluctuation not ſo ſenſible. I laid open the part, and a good deal of coagulated blood was diſcharged. She complained all that and the next day of pain, and a thin bloody ſanies came from the wound. I found not only the bone bare, but a conſiderable fracture, with ſome depreſſion. I preſſed with my finger the ſides of the bone, but it remained firm to the touch, and ſhe felt no uneaſineſs from it. I kept the wound open for ſome days, and finding no alarming ſymptoms, ſuffered it to heal, which it did by the end of the month. I recommended her to keep the part covered for ſome time, on account of the thinneſs of the cicatrix. This ſhe neglected. In ſome days after, leaning over a gar-

a garden wall, with a ſmart wind in her face, ſhe was ſeized with a violent pain, and imagined the wind was piercing into her head. She ſlept little, and was the whole night in a fever. Next morning I found the forehead greatly ſwelled, and let out a conſiderable quantity of matter. In ſome time it got well; ſhe had it covered with adheſive plaiſter, and never after complained.

Caſe II. Samuel Haſte received a wound on the upper part of the right parietal bone, of two inches long, with a looſe bone and fracture. Though the fracture could not admit of a doubt, yet there ſeemed to be but little depreſſion, and the ſides of it were firm to the touch. I ſaw no reaſon for the operation at preſent, but carefully attended to the ſymptoms. In the ſpace of four weeks the bone became covered, the wound healed, and he has ſince enjoyed perfectly good health.

Caſe III. M'Namara received a wound on the forehead, and near the left ſide of the frontal ſinus. In a few days after he was brought to the hoſpital; his pulſe was full, and he complained of a great head-ach. Upon examining through a ſmall aperture, I perceived the bone bare and rough, and concluded there was a

fracture. I removed the integuments, and found the bone fractured near two inches in length, but ſtill the parts were nearly upon an equality, and the bone firm to the touch. As he bled a good deal I did not direct venæſection, but ordered ſome powders of nitre and jalap, and the ſaline mixture. His head-ach was not abated next morning, ſo I directed a large bliſter to his back, which I deſired ſhould remain on for twenty-four hours. This removed the head-ach, and the wound went on well. In five days after, he complained of violent ſhiverings, and I ſhould have concluded them to be the precurſors of matter forming on the brain, had I, in the courſe of many hundred fractured ſkulls, ſeen a ſimilar inſtance; but I had not. He was not trepanned; the bark, in ſome time, removed theſe complaints, and he is again abroad.

Having thus, I apprehend, clearly proved, that many fractured ſkulls do not demand the trepan, it remains that I ſhould clearly diſcriminate between thoſe and other ſeemingly ſlight fractures, which abſolutely require it. In the courſe of my practice I have conſtantly obſerved, that fractures of the cranium are more extended in the inner than the outward table,

table, and of courſe, that ſimple fractures, ſuch as I have deſcribed, may do conſiderable damage within, whilſt all is fair without. Fractured ſkulls in general (with a very few exceptions) are attended with no very alarming ſymptoms for many days. They are free from fever and inflammation; nor is reaſon in the ſmalleſt degree impaired. But in the courſe of ten, twelve, or fifteen days, if any preſſure reſt on the brain, the patient becomes heavy, grows drowſy, comatoſe, and ſometimes convulſed. The firſt appearance of any of theſe ſymptoms is the critical time of alarm, and the operation ſhould be immediately proceeded to.

Caſe IV. J. O'Mara received a violent blow over the middle of the left parietal bone. It was for a good many days dreſſed by a perſon in the neighbourhood, but not appearing to mend, I was applied to. I found a ſeemingly ſlight contuſed wound, with a bare bone; and ſeeing him heavy and drowſy, I concluded a preſſure on the membranes of the brain. As he appeared more ſtupid the next morning, I removed the ſcalp, and found underneath a conſiderable depreſſion. The operation immediately followed the inciſion; the depreſſed part

was raiſed, ſome ſmall ſplints removed, and he is, at this day, a healthy man.

Caſe V. William O'Neil received a very extended wound on the ſuperior part of the left parietal, which bared the bone for near two inches, with a violent contuſion about the center of that bone. The wound was dreſſed, and every precaution taken to prevent fever and inflammation. He went on tolerably well for twelve days, except that the wound on the parietal never exhibited a pleaſing aſpect. About this time I perceived him to grow heavy and drowſy. I more narrowly inſpected the head: but though the bare bone became ſenſibly diſcoloured, and though I expected exfoliation would follow, yet I was well convinced that no fracture was there. I interrogated him cloſely. He told me the leaſt noiſe diſturbed him, and he imagined that ſound was conveyed through the ſide of his head, as well as through his ears. I now more narrowly inſpected the contuſion on the ſide of the head, which had hitherto been dreſſed with a compreſs dipped in ſpirits only. I thought I felt an obſcure fluctuation: at any rate the ſymptoms determined me to open this part. But what was my ſurpriſe when I found the bone underneath not only

only fractured, but beat into ſmall pieces, at the point of percuſſion. I trepanned on the ſpot; removed bits of bone, and raiſed others to their level. After this every thing went on well, except the wound at top, which threw off ſeveral exfoliations, and remained open many days after the fractured parts healed. This man became as ſtout and well as poſſible.

After theſe proofs, that even in many fractured ſkulls the operation of trepanning may be diſpenſed with, what pretence can we offer for trepanning in wounds of the cranium inflicted with inciſive inſtruments? I know of none that can juſtify ſo violent an outrage to nature, except ſymptoms of extravaſation appear, which I believe very ſeldom happen where the ſkull itſelf is injured.

Caſe VI. Edward Power received a deſperate wound of a back ſword, extending from the top of the coronal bone to the orbit of the left ſide, forming an extended and frightful chaſm, in which were included the bone, membranes, and brain. It bled conſiderably, as may well be ſuppoſed. He remained expoſed to the open air for near three hours after, and had not ſo much as a bit of rag to cover it. Fever and inflammation of the brain might reaſonably

ſonably be apprehended; yet, by a couple of bleedings, and ſome other antiphlogiſtics, the man was completely cured in five weeks, without exfoliation or the ſmalleſt operation. To this I ſhall add an inſtance given by La Motte*, of a man who received a blow of a ſabre on the right parietal bone, which divided the longitudinal ſinus and the left parietal, extending almoſt from ear to ear; and yet this man recovered without any operation.

Having diſpoſed of the above very intereſting queſtions, we ſhall now remark on ſuch fractures as neceſſarily require the operation in the firſt inſtance. Theſe are fractures accompanied with depreſſion, with or without wounds. For, not to advert to the reſtraint ſuch preſſure muſt neceſſarily cauſe to the motion of the brain, ſufficient in itſelf to produce fatal effects, if the depreſſed parts be pointed and ſharp, as is moſtly the caſe, acting againſt the uniform pulſation of the brain, the membranes muſt in ſome time be cut through, and the brain itſelf wounded; and whilſt this tragic work is going on, we have no ſymptoms to indicate the approaching danger till it is paſt remedy. The

* Traité complet de Chirurgie, t. iii, p. 343.

two

two following inſtances contraſted will explain and juſtify this poſition.

Caſe VII. A girl about ſeven years of age received a ſevere fracture, with profound depreſſion, on the left parietal bone; the integuments were entire, the girl quite compoſed and ſenſible, but the depreſſion was ſo deep that it could contain a very ſmall egg. Such was her ſituation when brought to me, half an hour after the injury. Seeing that it would require three or four crowns of the trephine to raiſe this extended fracture, I requeſted of Mr. Wallace, a military ſurgeon, and Mr. Pierce, to aſſiſt me in this charitable work. I removed all the integuments, wiped away the blood, and whilſt theſe gentlemen with their fingers made compreſſions over the bleeding veſſels, I began to operate on the inferior parts of the bone. I then commenced a ſecond on the upper part, and in a line with this; but the two elevators, though acting at the ſame time, had no effect on the depreſſion. Two more crowns were then applied to the ſides of the bone, and parallel to each other. Four levers acting in conjunction, it aſtoniſhed me to ſee with what a ſudden ſpring the depreſſed parts reſumed their former ſtation. Notwithſtanding the great extenſion

extenſion of this fracture, the loſs of covering, and of the bone itſelf, by four crowns of the trephine, this girl never after had the ſmalleſt untoward ſymptom.

What muſt have been the event of this caſe if not ſpeedily relieved, the following will ſhow.

Caſe VIII. Patrick Caſey, aged about eighteen, was thrown from his horſe with great force; the conſequence was a fracture in part of the coronal bone, with a conſiderable depreſſion. I was requeſted next morning to viſit him; and ſeeing his ſituation, I was juſt proceeding to the operation, when a ſurgeon of the city appeared, who ſaid he was employed by Caſey's maſter to attend to him. The depreſſion was ſo conſiderable, that the lower edge of the fracture was beaten under the uninjured part; here I intended my operation, in order the more ſpeedily and effectually to diſengage the fracture. But this was oppoſed; it was obſerved, that trepanning ſo low down would leave a great deformity, and that the end propoſed would be as well anſwered by perforating the bone at top. I oppoſed it in vain. I ſaw that the friends of the boy, who were preſent, as well as himſelf, wiſhed to have it done ſo. I trepanned, introduced the elevator, but could make

make no impreſſion, as the depreſſed parts were beyond the reach of the inſtrument. I now propoſed a ſecond opening on the lower edge of the fracture, the firſt being impoſſible to anſwer the end propoſed. This was not agreed to. It was obſerved, that an opening being made, no depoſit could be formed, and that the depreſſed part would become gradually detached, and probably come away, which has ſometimes happened. The ſore was carefully dreſſed, but the dura mater never aſſumed a right aſpect; however his ſpirits were good, and he had no complaint but what aroſe from the ſore itſelf. The diſcoloration of the dura mater made me try, on the 15th day, and again on the 17th, the effects of the elevator, but in vain. He was up every day. The 24th, looking out of a window for ſome time, he perceived a ſlight chilline ſs; at bed-time he grew hot and feveriſh, was very reſtleſs, and had a ſtrong ſhaking fit. This alteration was aſcribed to his making too free with himſelf. But I ſaw and dreaded the conſequences. I told the people that theſe alarming ſymptoms proceeded not from cold, but from the conſtant and uniform preſſure on the brain; and that if any chance remained for his recovery, which I much doubted,

doubted, it muſt be by a ſpeedy removal of the cauſe; and if they conſented I would not ſhrink from this diſagreeable buſineſs. I directly made the ſecond perforation, and ſoon raiſed the part; but, alas! the miſchief had been already completed. That day and the next he ſeemed a good deal lighter: but, about ten at night of the ſecond day, his neck was obſerved to be covered by a bloody ichor iſſuing from the ſore. Next morning his pulſe was more languid, and the dura mater quite black. Towards night the bloody ichor increaſed; he became ſlightly convulſed, with ſtupor. About ten the ſubſtance of the brain poured forth, and he expired next morning.

Fractures with a depreſſed bone always require the operation; and though ſome caſes may be adduced where an happy recovery has ſucceeded without this adoption, yet it muſt ariſe from particular circumſtances by no means to be depended on. For inſtance, the depreſſion may be uniform, ſo that no point of the fracture may preſs on the brain. In ſuch an inſtance, no doubt things may come about without trepanning; but have we any ſymptom to determine this point? None that I know of. Numbers I have ſeen periſh by neglecting the operation,

ration, becauſe they found themſelves free from pain and fever at the beginning. As, then, trepanning is a ſafe operation in any tolerable hands, no conſideration ſhould make the ſurgeon decline or procraſtinate it. He has already ſeen the happy conſequences of it when performed in the firſt inſtance. He will now ſee what may be hoped for from nature, even in the moſt deplorable caſes, from neglect or delay.

Caſe IX. I was ſent for to Patrick Kelly, who had received repeated blows on the left parietal bone, which produced a very extended fracture, with a ſlight contuſed wound of the integuments. He had been attended for ſome time by a young man in the neighbourhood. In the courſe of about ten days he became heavy and drowſy; the complaints increaſed, and when I was ſent for he was comatoſe, languid, and oppreſſed; ſo much ſo, that I apprehended any operation uſeleſs, and had ſome thoughts of immediately returning. But reflecting on the great reſources of nature, and that it would be in ſome ſort criminal not to diſcharge my duty, I removed the integuments on the interior part, where the depreſſion was greateſt, and directly applied the largeſt crown I had.

I had. On removing the piece I introduced the elevator, raiſed the depreſſed parts, and was ſatisfied, from the extent of the injury, that many pieces of bone would come away. Immediately after this he opened his eyes, knew me, and ſpoke. I left directions for managing the dreſſings, and ordered ſome medicines of the nervous tribe. In eight days after I again viſited him, and found a conſiderable part of the bone looſe. I made a ſlight inciſion over it, and extracted it with my forceps. The next day he found a weakneſs of the neck and arm of the oppoſite ſide, and by night it attacked that entire extremity. In a few days after two more pieces of bones were removed, and again another. He laboured under this partial paralyſis for about fifteen days, and then gradually recovered.

Caſe X. I viſited Patrick Hayes, who, thirteen days before, had received a blow which had made a profound depreſſion on the poſterior and near the ſuperior part of the right parietal bone, and very near its junction with the occiput. It was attended with no wound, but a ſmall perforation ſcarce ſufficient to admit the point of a probe. In ſome days ſymptoms of a depreſſed bone came on. I found the man with

with a ſlow, weak, but regular pulſe. He was quite comatoſe, and could not articulate. Upon paſſing a fine probe through the little perforation, I found the bone had been craſhed into ſmall bits, and was for ſome time at a loſs what to do, on account of the ſituation of the man and the nature of the injury. I declared to his friends that I ſtrongly apprehended the caſe mortal, but would do what depended on me if they conſented. Upon removing the ſcalp, the bone had been ſo far beat in that I concluded I ſhould find the membranes cut through. Could I raiſe any part of the fracture I ſaw to a certainty I could remove the whole, the injury being confined to the circumſcribed part. With my forceps, probe, and elevator, ſucceeding each other, I was fortunate enough to remove one ſplint. This afforded me more room; and ſo, by degrees, and with ſome patience, I cleared the dura mater of all incumbrance, without recurring to the trephine. It was greatly depreſſed, and though wounded in two or three places by the point of the bone, yet no where cut through, but diſcoloured and blackiſh. He opened his eyes after this, and appeared lighter. Antiſeptics and the bark were not omitted, as well as a generous diet;

that is to ſay, ſtrong ſeaſoned broths, ſago, or gruel with wine, and wine whey, at times. In ſome time the dura mater roſe to its natural height, the diſeaſed parts ſloughed off, it gradually aſſumed its natural colour, and he recovered.

The next ſpecies of injury that requires trepanning is, depoſits of matter on the membranes of the brain, or on its ſurface. On this very obſcure and truly lamentable malady, my eſteemed friend, Mr. Deaſe, of the Royal College of Surgeons, has thrown much light, in a late ingenious treatiſe *. It is beyond doubt a complaint of a moſt ſerious and alarming nature. In the courſe of many years practice, and painful obſervations, I cannot give myſelf credit for a ſingle cure I ever performed in this way, when the ſymptoms of depoſit were formed; and whether the patient was or was not trepanned, the ſcene cloſed with death! However, this ill ſucceſs I complain of ſhould not deter others; for in this caſe the operation is indiſpenſible; inſtances of recovery from it can be adduced; and when a practitioner makes a fair prognoſtic he cannot be cenſured.

* Obſervations on Wounds of the Head.

This

This complaint is moſtly confined to wounds of the ſcalp and pericranium, but particularly of the latter. The ſymptoms of matter forming under the cranium commence generally about the eighth day, ſometimes later, but ſeldom exceed the fifteenth: theſe are, ſickneſs at ſtomach, head ach, a ſmart fever, and ſtrong ſhaking fit; the wound aſſumes a paler colour, the diſcharge is thin and pale, and the pericranium becomes more and more detached from the ſkull. Theſe are the unequivocal ſigns that matter is formed on the cerebrum, or on its covering; and in theſe caſes, however deplorable the event, there is no reſource but in trepanning. It is a fact well known to perſons of extenſive practice, that though this matter begins under the immediate point of percuſſion, yet that it extends much farther. To operate, then, to any effect, I would recommend the application of more than one crown of the trephine. For inſtance, the firſt perforation being made, I would immediately proceed to a ſecond, including a ſegment of the former circle in it, by which means the iſſue of matter is more facilitated, and if it ſhould be found neceſſary to open the dura mater, it will be done

with greater effect by extending the wound of it.

Concuſſions of the brain are generally ſuppoſed to require the trepan. Dionis, an able writer of the laſt century, judges that the loſs of ſenſe and memory, immediately ſucceeding a violent injury, are ſufficient motives to proceed directly to the operation, and he illuſtrates his poſition by a caſe in point*. Mr. Pott, though he very judiciouſly points out what can be effected by the operation, namely, the raiſing of depreſſed bones, or the iſſue of blood or matter, yet he becomes an advocate for it on ſtupors immediately following a hurt. "For "though it may be reſolved into ſymptoms of "concuſſion," ſays he, "yet extravaſation "may ſo ſpeedily follow the firſt ſhock, as to "carry all the appearance of the firſt, whilſt "the ſecond is the real cauſe." But to a certainty extravaſations of blood, matter, or water, (for I have met with them all) do not immediately, nor for ſome days after, produce ſtupor or inſenſibility. Fractures with conſiderable depreſſion, extravaſations, &c. ſhow no alarming ſigns for many days; but ſtupor *immediately* follow-

* Cours d'Operations de Chirurgie, p. 510.

ing

ing a fall or hurt *is an unequivocal ſign of concuſſion, and of concuſſion only.* Not but that I have met with three caſes, and each of them mortal, where the ſymptoms of concuſſion immediately appeared, though in each the fracture and depreſſion were evident. But this only proves that in each the injury was ſo great that the yielding of the ſkull was not ſufficient to deſtroy the force of motion.

In caſes of death, after injuries of the head, where concuſſion was the cauſe, I have invariably obſerved the following appearances:—the pericranium and ſkull were injured; the dura mater adhered to the latter; there was rarely any extravaſation of blood, and this but ſlight, and out of the reach of any inſtrument. In a word, I could get no information, except that in thoſe who died ſoon after the accident I have ſometimes thought the brain did nor completely fill the cavity of the cranium. To this let me add, that inſtances can be adduced where leaps or falls from an high place, on hard ground, where the head has been far removed from the ſeat of the injury, have produced all the ſymptoms of concuſſion. I well know that many have been trepanned, and great cures boaſted of in theſe diſorders; but ſure I am, that whatever merit they

might juſtly claim, by endangering nature's endeavours and protracting recovery, they had none with reſpect to the merit of the caſe.

I divide concuſſions of the brain into three claſſes. 1. Mortal ones. 2. Where there is recovery with inſanity. And 3. Where there is perfect recovery. From what has been ſaid it is evident that I had early made up my mind with reſpect to trepanning in this complaint: I have ſingled out two ſtriking caſes in point in ſupport of my opinion.

Caſe XI. A gentleman was thrown from his horſe, and found ſpeechleſs and ſenſeleſs; and in this condition was brought home. A phyſician was ſent for, who immediately let blood; but finding the comatoſe indiſpoſition continue a fracture was ſuſpected, and I was called upon. The integuments were very thin, he had been cloſe ſhaved, and I could not be well decided. After the moſt critical inveſtigation I was convinced there was no fracture; beſides, his ſymptoms were the reverſe of thoſe attending a fracture. Bleeding, bliſters, ſinapiſms, &c. ſucceſſively ſucceeded each other; but he gained no ground. He remained for ten days after in the ſame ſituation, with frequent moanings, and without being capable of uttering a word, though he took nouriſhment,

nourishment, drink, and whatever was offered him. About this time dawns of reason and symptoms of convalescence appeared, and in a very short time he was restored to perfect sanity of mind and body, and lived for many years after.

Case XII. Mr. M. was thrown from his horse, and pitched on the crown of his head on a stone pavement. He also received a contused wound from a kick of the horse on a posterior part of the right parietal bone, which denuded the bone. He was taken up senseless and speechless. He was profusely bled, and suffered other evacuations in the course of the two succeeding days, without the smallest amendment I was then sent for; and from the above recital of the case was satisfied that there was no fracture. The pulse, as in such cases, was slow and full; he moaned much, and frequently put his hand to his head. Experience had taught me that profuse evacuations answer no good purpose in these maladies, so I gave him medicines of the nervous tribe, with a cold infusion of the bark; and for his diet, veal broth, beef tea, and sometimes wine whey. In two days after his pulse became firmer, but his restlessness and anxiety increased towards evening. About one next

morning he grew perfectly outrageous, so as with difficulty to be kept in his bed, and I was called up. On reflection, nothing seemed to me so proper to calm these symptoms as sedatives. I sent immediately to the apothecary's, gave him myself a dose; and finding him calmer, in half an hour, I left him, with directions that at what time soever it returned the dose should be repeated. At five in the morning the medicine was again given. He remained composed, was much better, and visibly clear in his intellects. In a word, I left him perfectly restored the third day after; the wound in the head healed in some days after, and he recovered.

From the preceding facts and observations the following propositions may be deduced.

1. That many fractures of the skull do not require the application of the trephine.

2. That some apparently slight fractures do absolutely require its application; in such cases the inner table of the skull is generally more hurt than the outer, and bad symptoms do not arise till towards the end of a fortnight after the injury.

3. That fractures with depression require the application of the trephine, and that from such there have been some surprising recoveries.

4. That

4. That depoſits of matter on the membranes or ſurface of the brain require the trephine, though it ſeldom proves ſucceſsful.

5. That concuſſion of the brain, characteriſed by *immediate ſtupor and inſenſibility*, does not require the trephine, unleſs accompanied with evident depreſſion of the ſkull or extravaſation, neither of which produce bad ſymptoms for ſome days after the accident which has given riſe to them.

XVII. *Account of a fiſtulous Opening in the Stomach*; *by* George Burrowes, *M. D. M. R. I. A.* Vide *Tranſactions of the Royal Iriſh Academy, Vol.* IV.

THE perſon whoſe caſe is here related and who had been an inferior officer in the ſervice of the Eaſt India Company, received, we are told, in a voyage to India, a wound from a blunt-pointed wooden inſtrument in the abdomen, between the cartilage of the eighth rib, on the right ſide, and the umbilicus, penetrating the ſtomach; much inflammation and fever followed the wound, and

continued a very considerable time. When the inflammation subsided an opening remained, through which, when the tent was withdrawn, a fluid of a whitish colour flowed; the sides, instead of closing, turned in, and no union could, by any means, be induced. The man was therefore advised to keep the opening constantly plugged up: this he did for the remainder of his life, never withdrawing the plug but to gratify curiosity or to replace it with a new one. The opening was about the third of an inch in diameter. The plug he used was generally cotton wick twisted hard.

It was twenty-seven years from the time he received the injury to that at which our author first saw him. This was about November, 1790, when he was admitted into the House of Industry at Dublin. He had then attained his sixty-fifth year, and was, to all appearance, we are told, a healthy man, regular in his bowels and in all his secretions. He had been, it seems, extremely drunken and dissipated, and was, even at that time, frequently intoxicated; yet he never complained of any inconvenience from it, but returned the next day to occupation or debauch with vivacity and with strength. He had procured a livelihood

for

for a few years before Dr. Burrowes met with him by teaching French in Dublin, being too old for his former occupation.—To this account our author adds, that in a voyage ſubſequent to that in which the patient received the wound, he was ſeverely afflicted with ſcurvy, in common with ſeveral others in the ſhip, and in conſequence of that diſeaſe loſt all his teeth. All the alveolar proceſſes were abſorbed, notwithſtanding which he contrived, it ſeems, to break his food, his gums being much hardened, and ate with conſiderable appetite and a good digeſtion.

On removing the plug, after he had taken milk, a part of the milk, we are told, quite pure, eſcaped through the opening; and the patient obſerved that when his ſtomach was empty of meat, and he took the plug out, a whitiſh fluid adhered to it that taſted ſweet. He never felt any pain in the opening, nor inconvenience from any particular food.

After paſſing the winter in the Houſe of Induſtry, he went into the country; but returned at the end of autumn, extremely debilitated, having ſuffered much from hardſhip and intemperance. From this time, it is obſerved, he gradually declined, his appetite continuing tolerably good, but his

his bowels weak, till he died, which happened about ſix weeks after his return.

On examining the body after death, the wound was found to penetrate the ſtomach in the centre of the great curvature, and from the adheſions of the liver, colon and integuments, a very conſiderable ſtricture was formed, ſo as to give the ſtomach the appearance of a double bag, with the opening in the middle; the duodenum was enlarged beyond the ſize of the colon, and ſeemed to have in ſome meaſure performed the functions of a ſecond ſtomach. The colon was firmly attached to the lower part of the ſtomach by a ligamentous ſubſtance, that our author thinks, muſt have been formed by the inflammation ſubſequent to the wound. All the other viſcera, he obſerves, were found, and perfectly natural both in appearance and ſituation.

Dr. Burrowes concludes the hiſtory of this extraordinary caſe, with expreſſing his regret at his having been prevented from rendering it more ſubſervient to medical purpoſes by the man's ſuddenly departing from the Houſe of Induſtry without his knowledge, and returning to it in ſo debilitated a ſtate; as ſuch an opportunity, his

he obſerves, of expoſing aliments to the action of the ſuccus gaſtricus *alone*, of aſcertaining the effects of ſeveral medicines when confined to the ſtomach, and of making experiments on narcotics, he can hardly again expect to meet with.

For accounts of ſimilar caſes Dr. Burrowes refers to *Mem. de l' Acad. Royale de Chirurgie*, Tom. IV. page 124, where, in addition to two ſuch inſtances related by Schenkius, (*Obs. Med.* Lib. III. de *Vuln. Ventric.* Obs. CXXI.) we learn, that M. Foubert preſerved, in his muſeum, the ſtomach of a man who died in the Hotel Dieu at Orleans, which had an opening externally from a wound, and into which the perſon, while alive, uſed frequently to inject different alliments, and digeſted them as well as thoſe taken by the mouth; and that Covillard, in his *Obſervations Iatro-Chirurgiques* (Obs. XLI.) relates the caſe of a ſoldier who received a wound in the upper and lateral part of the epigaſtrium, through which his aliment iſſued. His ſurgeons by means of tents enabled him to retain his food, and by degrees he recovered his health; but the wound of the ſtomach never cloſed, and he was conſtantly obliged to make uſe of a ſilver plug. Covillard made him take out this plug in the preſence of

ſeveral

ſeveral medical men, and they ſaw about a ſpoonful of an imperfectly digeſted chylous ſubſtance iſſue from the fiſtulous opening; after this he ſwallowed a glaſs of wine, which was immediately diſcharged through the ſame paſſage. It was obſerved that in other reſpects the patient had the appearance of a man in perfect health.

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* *Salix Latifolia* Linn.

† Fictitious.

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* See Volume II. page 208.

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